

Water Resources Survey

MONTANA WATER RESOURCES
GROUNDWATER DIVISION

RECORDS
MANAGEMENT
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Part I:
HISTORY OF LAND AND WATER
USE ON IRRIGATED AREAS

and

Part II:
MAPS SHOWING IRRIGATED AREAS
IN COLORS DESIGNATING THE
SOURCES OF SUPPLY

Powell County, Montana

Published by
STATE ENGINEER'S OFFICE
Helena, Montana, June, 1959

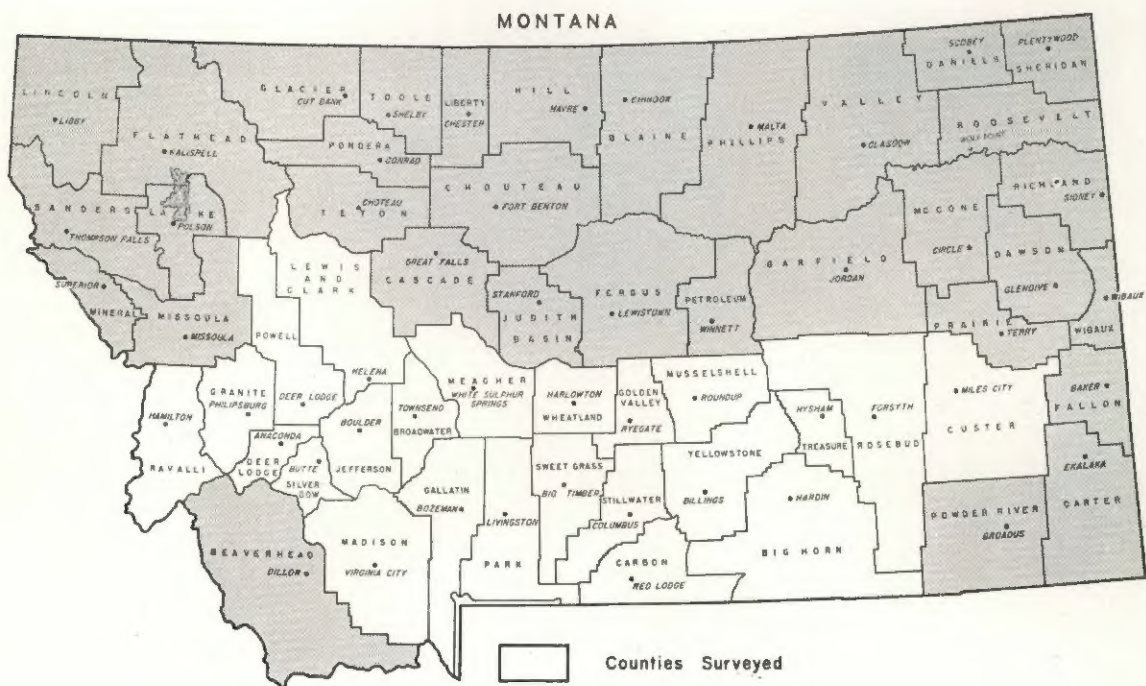


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POWELL COUNTY
MONTANA

Part I

History of Land and Water Use on Irrigated Areas



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June, 1959

Honorable J. Hugo Aronson
Governor of Montana
Capitol Building
Helena, Montana

Dear Governor Aronson:

Submitted herewith is a consolidated report on the Water Resources Survey of Powell County, Montana.

This work is being carried on with funds made available to the State Engineer by the 35th Legislative Session, 1957, and in cooperation with the State Water Conservation Board and the Montana State Agricultural Experiment Station.

The report is divided into two parts. Part I consists of history of land and water use, irrigated lands, water rights, etc., and Part II contains the township maps in the county showing in color the lands irrigated from each source or canal system.

Work has been completed and reports are now available for the following counties: Big Horn, Broadwater, Carbon, Custer, Deer Lodge, Gallatin, Golden Valley, Granite, Jefferson, Lewis and Clark, Madison, Meagher, Musselshell, Park, **Powell**, Ravalli, Rosebud, Silver Bow, Stillwater, Sweetgrass, Treasure, Wheatland and Yellowstone.

The office files contain minute descriptions and details of each individual water right and land use, which are too voluminous to be included herein. These office files are available for inspection to those who are interested.

The historical data on water rights contained in this report can never become obsolete. If new information is added from time to time as new developments occur, the records can always be kept current and up to date.

Respectfully submitted,
FRED E. BUCK, State Engineer

ACKNOWLEDGMENTS

A survey and study of water resources involves many phases of both field and office work in order to gather the necessary data to make the information complete and comprehensive. Appreciation of the splendid cooperation of various agencies and individuals who gave their time and assistance in aiding us in gathering the data for the preparation of this report is hereby acknowledged.

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The State Engineer's Office, Water Resources Survey, hereby expresses sincere appreciation to the many ranchers, farmers and stockmen who have given their helpful cooperation in this survey.

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FOREWORD

MONTANA'S WATER RIGHT PROBLEMS

Our concern over surface water rights in Montana is nearly a century old. When the first Territorial Legislature, meeting in Bannack, adopted the common law of England on January 11, 1865, the Territory's legal profession assumed that it had adopted the Doctrine of Riparian Rights. This doctrine had evolved in England and in eastern United States where the annual rainfall is generally more than twenty inches. It gave the owners of land bordering a stream the right to have that stream flow past their land undiminished in quantity and unaltered in quality and to use it for household and livestock purposes. Since the law restricted the use of the water to riparian owners and forbade them to reduce appreciably the stream flow, the early miners and ranchers in Montana favored the Doctrine of Prior Appropriation which permitted diversion and diminution of the streams. Consequently, the next day the legislature enacted a law which permitted diversion by both riparian and non-riparian owners. Whether or not this action provided Montana with one or two definitions of water rights was not settled until 1921 when the Montana Supreme Court in the *Mettler vs. Ames Realty Co.* case declared the Doctrine of Prior Appropriation to be the valid Montana water right law. "Our conclusion," it said, "is that the common law doctrine of riparian rights has never prevailed in Montana since the enactment of the Bannack Statutes in 1865 and that it is unsuited to the conditions here . . ."

The appropriation right which originated in California was used by the forty-niners to divert water from the streams to placer mine gold. They applied to the water the same rules that they applied to their mining claims—first in time, first in right and limitation of the right by beneficial use. Those who came to the Montana gulches brought with them these rules, applying them to agriculture as well as to mining.

The main points of consideration under the Doctrine of Prior Appropriations are:

1. The use of water may be acquired by both riparian and non-riparian landowners.
2. It allows diversion of water regardless of the reduction of the water supply in the stream.
3. The value of the right is determined by the priority of the appropriation; i.e., first in time is first in right.
4. The right is limited to the use of the water. Stream waters in Montana are the property of the State and the appropriator acquires only a right to their use. Moreover, this use must be beneficial.
5. A right to the use of water is considered property only in the sense that it can be bought or sold; its owner may not be deprived of it except by due process of law.

The State Legislature has provided methods for the acquisition, determination of priority and administration of the right. No right may be acquired on a stream without

diversion of water and its application to a beneficial use. On unadjudicated streams, the Statutes stipulate that the diversion must be preceded by posting a notice at a point of intended diversion and by filing a copy of it within 20 days in the County Clerk's Office of the county in which the appropriation is being made. Construction of the means of diversion must begin within 40 days of the posting and continue with reasonable diligence to completion. However, the Montana Supreme Court has ruled that an appropriator who fails to comply with the Statutes may still acquire a right merely by digging a ditch and putting the water to beneficial use.

To obtain a water right on an adjudicated stream, one must petition the District Court having jurisdiction over that stream for permission to make an appropriation. If the other appropriators do not object, the court gives its consent and issues a supplementary decree granting the right subject to the rights of the prior appropriators.

Inasmuch as the Montana laws do not require water users to file official records of the completion of their appropriations, it becomes advisable as soon as the demand for the waters of a stream becomes greater than its supply, to determine the rights and priorities of each user by means of an adjudication or water right suit. This action may be initiated by one or more of the appropriators who may make all the other claimants parties to the suit. Thereupon the Judge of the District Court examines the claims of all the claimants and issues a decree establishing priority of the right of each water user and the amount of water he is entitled to use. The court decree becomes in effect the deed of the appropriator to his water right.

Whenever scarcity of water in an adjudicated stream requires an allocation of the supply according to the priority of rights, the Judge, upon petition of the owners of at least 15 per cent of the water rights affected, must appoint a water commissioner to distribute the water. After the Commissioner has been appointed the Judge gives him full instructions on how the water is to be apportioned and distributed in accordance with the terms of the decree.

The recordings of appropriations in local courthouses provides an incomplete record of the water rights on unadjudicated streams. In fact, the county records often bear little relation to the existing situation. Since the law places no restriction on the number and extent of the filings which may be made on an unadjudicated stream, the total amount of water claimed is frequently many times the available flow. There are numerous examples of streams becoming over appropriated. Once, six appropriators each claimed all of the water in Lyman Creek near Bozeman. Before the adjudication of claims to the waters of Prickly Pear Creek, 68 parties claimed thirty times its average flow of 50 cfs. Today, the Big Hole River with an average flow of 1,129 cfs has filings totaling 173,912 cfs. A person is unable to distinguish in the county courthouses the perfected rights from the unperfected ones since the law requires no official recordation of the completion of an appropriation. Recognition by the courts of unrecorded appropriations adds to the incompleteness of these records. To further complicate the situation, appropriators have used different names for the same stream in their filings. In Montana many of the streams flow through several counties; consequently, water right fil-

ings on these inter-county streams are found distributed in two or more county court-houses. Anyone desirous of determining appropriations on a certain river or creek finds it difficult and expensive to examine records in several places. In addition, the records are sometimes scattered because the original nine counties of 1865 have now increased to 56. As the original counties have been divided and sub-divided, the water right filings have frequently not been transcribed from the records of one county to the other. Thus, a record of an early appropriation in what is at present Powell County may be found in the court house of the original Deer Lodge County.

It can be readily seen that this system of recording offers little protection to rights in the use of water until they are determined by an adjudication. In other words, an appropriator does not gain a clear title to his water right until after adjudication and then the title may not be clear because the Montana system of determining rights is also faulty. In the first place, adjudications are costly, sometimes very costly when they are prolonged for years. It is estimated that litigation over the Beaverhead River, which has lasted more than twenty years, has cost the residents of the valley nearly half a million dollars. In the second place, unless the court seeks the advice of a competent irrigation engineer, the adjudication may be based upon inaccurate evidence. In the third place, if some claimant has been inadvertently left out of the action, it is not final and may be reopened for consideration by the aggrieved party. Another difficulty arises in determining the ownership of a water right when land under an adjudicated stream becomes sub-divided in later years and the water not proportioned to the land by deed or otherwise. There is no provision made by law requiring the recording of specific water right ownership on deeds and abstracts.

The Legislative Session of 1957 passed Chapter 114 providing for the policing of water released from storage to be transmitted through a natural stream bed to the place of use. The owner of the storage must petition the court for the right to have the water policed from the storage reservoir to the place of use. If there are no objections, the court may issue this right and appoint a water commissioner to distribute the water in accordance therewith. This law applies only to unadjudicated streams.

Administration of water on an adjudicated stream is done by the District Court, but it has its drawbacks. The appointment of a water commissioner is often delayed until the shortage of water is acute and the court frequently finds it difficult to obtain a competent man for a position so temporary. The present administration of adjudicated streams which cross the county boundaries of judicial districts creates problems. Many of the water decrees stipulate head gates and measuring devices for proper water distribution, but in many instances the stipulation is not enforced, causing disagreement among the water users.

Since a water right is considered property and may be bought and sold, the nature of water requires certain limitations in its use. One of the major faults affecting a stream after an adjudication is the failure of the District Court to have some definite control over the transfer of water rights from their designated places of use. The sale and leasing of water is becoming a common practice on many adjudicated streams and has cre-

ated serious complications. By changing the water use to a different location, many of the remaining rights along the stream are disrupted, resulting in a complete breakdown of the purpose intended by the adjudication. To correct this situation, legal action must be initiated by the injured parties as it is their responsibility and not the Court's.

At one time or another all of the other Western Reclamation States have used similar methods of local regulation of water rights. Now all of them except Montana have more or less abandoned these practices and replaced them by a system of centralized state control such as the one adopted by the State of Wyoming. The key characteristics of the Wyoming system are the registration of both the initiation and completion of an appropriation in the State Engineer's Office, the determination of rights and administration by a State Board of Control headed by the State Engineer. These methods give the Wyoming water users titles to the use of water as defined and defensible as those which they have to their land.

When Montana began to negotiate the Yellowstone River Compact with Wyoming and North Dakota in 1939, the need for some definite information concerning our water and its use became apparent. The Legislature in 1939 passed a bill (Ch. 185) authorized the collection of data pertaining to our uses of water and it is under this authority that the Water Resources Survey is being carried on. The purpose of this survey is six fold: (1) to catalogue by counties, in the office of the State Engineer, all recorded, appropriated and decreed water rights including use rights as they are found; (2) to map the lands upon which the water is being used; (3) to provide the public with pertinent water right information on any stream, thereby assisting them in any transaction where water is involved; (4) to help State and Federal agencies in pertinent matters; (5) to eliminate unnecessary court action in water right disputes; (6) and to have a complete inventory of our perfected water rights in case we need to defend these rights against the encroachments of lower states.

Ground water and surface water are intimately related. In fact, it is difficult to consider one without the other. In times of heavy precipitation and surface runoff, water seeps below the land surface to recharge underground reservoirs which, in turn, discharge ground water to streams and maintain their flow during dry seasons. The amount of water stored underground is far greater at any given instant than the amount of surface water in Montana, and, without seepage from underground sources, it is probable that nearly all the streams in the State would cease to flow during the dry seasons.

It is believed that Montana's ground water resource is vast and only partly developed. Yet this resource is now undergoing a rapidly accelerating development as the need for its use increases and economical energy for pumping becomes available. Continued rapid development will undoubtedly cause waste and depletion of ground water in areas where it is not plentiful. Experience in other states has shown that once overuse of ground water in a specific area has started, it is nearly impossible to stop, and may result in painful economic readjustments for the inhabitants of the area concerned.

Practical steps aimed at conserving ground water resources and correcting related deficiencies in surface water laws are necessary in Montana. Proposed ground water codes have been rejected by four sessions of the Montana Legislative Assembly, (1951, 1953, 1955, 1959) and proposed improvements of existing surface water laws have also failed to be enacted. The formulation and presentation of a workable ground water code, designed to protect and conserve Montana's ground water resources, to the next Legislature are essential if Montana is to avoid the problems that plague some of our sister states.

A ground water code must be based on full consideration of the intimate relation of ground water and surface water. A central filing office where all filings, well logs, and other records (past, present, and future) for all water in use—ground or surface—should be provided for by any water code. Accurate records concerning water rights and amount of water available are essential in the administration and investigation of water resources. The availability of these records in a central office under the control of a responsible State agency will surely provide a stronger and more accurate basis for the negotiation of inter-state water compacts, as well as set up a means for rapid evaluation of data for in-State litigation.

METHODS OF SURVEY

Water Resources data contained in Part I and Part II of this report are obtained from courthouse records in conjunction with individual contacts of land ownership. A survey of this type involves extensive detailed work in both the office and field to compile a comprehensive inventory of water rights as they apply to land and other uses.

The material of foremost importance used in conducting the survey is as follows: From the files of the county courthouse the data required includes; land ownership, water right records (decrees and appropriations), articles of incorporation of ditch companies and any other legal papers in regard to the distribution and use of water. Deed records of land ownership are reviewed and abstracts are checked for water right information when available.

Aerial photography is used by the survey to assure accuracy in mapping the land areas of water use and all the other detailed information which appears on the final colored township maps in Part II of the reports. Section and township locations are determined by the photogrammetric system, based on government land office survey plats, plane-table surveys, county maps and by "on the spot" location during the field survey. Noted on the photographs are the locations of each irrigation system, with the irrigated irrigable land areas defined. All information compiled on the aerial photo is transferred and drawn onto a final base map by the means of aerial projection. From the base map color separation maps are made and may include three to ten over-lay separation plates, depending on the number of irrigation systems within the township.

Field forms are prepared for each land owner, showing the name of the owner and operator, photo index number, a plat defining the ownership boundary, type of irrigation system and source of water supply and the total acreage irrigated and irrigable under each. All of the appropriated and decreed water rights that apply to each ownership by the description of intended place of use are listed on the field form. During the field survey, all water rights listed on the field form are verified with the land owner. Whenever any doubt or complication exists in the use of a water right, deed records of the land are checked to determine the absolute right of use.

So far as known, this is the first survey of its kind ever attempted in the United States. The value of the work has become well substantiated in the counties completed to date by giving Montana its first accurate and verified information concerning its water rights and their use. New development of land for irrigation purposes by State and Federal agencies is not within the scope of this report. The facts presented are as found at the time of completing each survey and provide the items and figures from which a detailed analysis of water and land use can be made.

The historical data contained in these reports can never become obsolete. If new information is added from time to time as new developments occur, the records can always be kept current and up-to-date.

GENERAL INFORMATION

Powell County was created on January 31, 1901, from Deer Lodge, a County which comprised an area 70 miles wide and 250 miles long, extending from Canada to the Big Hole River. The town of Deer Lodge was designated as the county seat of Powell County, but prior to the year of 1864, it was known by the various names of Cottonwood, Spanish Fork, and La Barge City. Deer Lodge became an important stop for travelers on the Mullan Road and one of the few places along the route where emigrants could obtain fresh beef and vegetables and the services of a blacksmith. Many prospectors traveling through the country called the settlement "Good Little Town on the Road to Bear," because it was a pleasant place to rest and provided a break in their journey.

The name "Deer Lodge," originated with the Indians and was derived from the expression meaning "White-Tailed Deer's Lodge." It was called this name by the Indians, because many deer were found in the brushy bottoms of the valley and because of a certain cone shaped mound, or butte at Warm Springs from which steam emerged in the winter just like smoke from an Indian lodge.

The Deer Lodge Valley was not the home of any one tribe of Indians, but it was on the main route where they passed through on their way to the Buffalo hunting grounds, particularly the Flatheads and their allies the Ne Perces, Pend d' Oreilles, Coeur d' Alenes, and Yakimas. Each fall before the snow fell, and again in the spring, these tribes traveled through the Deer Lodge Valley to the source of the Clark Fork of the Columbia, down the headwaters of the Jefferson, across the Gallatin Plains and over the Bozeman Pass into the buffalo country. This was an annual buffalo hunt to the plains of the Judith Basin and Yellowstone to lay in a supply of meat. As early as September 1831, Warren Ferris mentioned finding an encampment of 100 lodges of Pend d' Oreilles in the Deer Lodge Valley.

The Flatheads and their allies did not care to linger on the journey up the Clark Fork, due to the fact that the Blackfeet, Bannack, and Snake Tribes were constantly conducting horse stealing raids in the valley. The Flatheads and the Nez Perce Indians were well supplied with horses, many of them having 30 to 40 head each. For that reason, the Blackfeet, Bannacks, and Snakes, whenever they were in need of horses, entered the Deer Lodge Valley in small raiding parties to steal them. The Flatheads and the Blackfeet were mortal enemies and many fierce battles between the two tribes took place on the east side of the mountains. The Blackfeet maintained that the Flatheads were encroaching on their hunting territory and large war parties of Blackfeet would make attacks on the camps of Flathead Indians.

As in many other areas of western Montana, the area that now embraces Powell County was settled by prospectors moving north from the gold fields of California and the southwestern part of the United States.

Credit should be given to Francois Finley, a part-blood Canadian-Indian, with a nickname of Benetsee for the first discovery of gold in Montana. Benetsee, who had

been in California in 1849, and possibly had panned gold there, was by vocation a fur trader and worked for the Hudson's Bay Company. His trip to California had not been necessarily a search for either gold or furs, but was made especially to gather horses. When he returned with the horses to the fertile and beautiful Deer Lodge Valley in 1850, he planned to use them for breeding purposes and to sell them on the rapidly expanding market. Moving about the country, he was constantly on the lookout for gold in "them thar streams." There may not be enough factual evidence to accept Finley as the first discoverer of gold, but the story was so generally told and believed in the early days, that there is no reason for questioning his discovery at Gold Creek in the year of 1852.

Whether Finley ever panned for gold after 1852 is not known, but apparently he did brag about it from place to place and the word spread through the northwest as far as Colorado and Utah, and even to California. It was in Utah that the Stuarts heard about it.

One of the earliest settlers in the Powell County area, was John Francis Grant. In 1855, a log structure was erected by Grant near the mouth of the Little Blackfoot River. Grant became very successful in trading, and his herds of cattle and bands of horses increased to sizeable numbers. His place was known far and wide as a stopover for travelers, a place to trade and gather news, and to forget some of the frontier hardships. Johnny Grant, as he was known throughout the territory, was a squaw man who had several Indian wives from various tribes that passed through the country and he always maintained friendly relations with his Indian in-laws. Some say that he had as many as seven wives, one wife from each of the tribes that traveled through the valley. In order to get the best results when trading, he would bring out the wife from the tribe that he was dealing with at the time. He was a shrewd trader and soon built up a sizeable fortune. He loaned large sums of money to those he trusted, but never kept an account book. Grant never locked his door and never lost a dollar, though he had large sums of money stored in his cabin. By 1859, his stock ranged the entire valley unmolested and every Indian and white was welcome to his home and food. His cattle when fat were sold or driven to the Emigrant Road, where he would trade one fat animal to a passing traveler for two lean ones.

In the spring of 1859, he moved to Cottonwood (Deer Lodge) and erected a home which was for many years one of the finest houses in Montana. Some of the lumber used in construction of the house was hauled by ox team from as far away as St. Ignatius Mission, a distance of 135 miles.

The Stuart brothers, James and Granville, were among the first permanent settlers and prospectors in the Deer Lodge area. Born in Virginia, they spent most of their early childhood in Iowa and in 1852, went with their father to the rich mining fields in California. Their father in a few months decided to return to Iowa, but the boys stayed on in California to work in the mines there. After six discouraging years of mining in California, the Stuart brothers moved on and while detouring around Salt Lake in Utah to avoid the Mormons, who had a rebellion in progress at that time, they heard about Benetsee's (Francois Finley) gold discovery in what is now Montana. Trav-

eling north and in the company of Robert Hereford, the Stuarts spent the winter of 1857-58 in the Beaverhead Valley. In the spring, the Stuart brothers with a friend, Reece Anderson headed for the Benetsee Creek (Gold Creek) to try their luck there. They might have had some difficulty in finding Benetsee Creek if they hadn't come across Thomas Adams on Flint Creek near where the town of Phillipsburg is now located. He was running cattle on shares for Johnny Grant, who the year before had established himself as a rancher in the Deer Lodge Valley. When Adams found out what the Stuarts were about to do, he decided to join them in prospecting for gold and showed them the way to Benetsee Creek.

The Stuart brothers worked the area for several days, panning the creek, but apparently they got very little, if any gold. To them this method of obtaining gold wasn't prospecting, so they went up the creek about five miles and near the bank of the creek, at the foot of the mountain, sunk a hole about five feet deep and found on an average of 10¢ in fine gold to each pan of sand and gravel. This convinced them that there were rich gold deposits in the vicinity. Lacking the required tools, equipment, and provisions these men had no choice but to give up mining for the present. They were, never-the-less, well pleased with what they had found and definitely decided to work their claims and to make the place their permanent home.

As a result of this prospecting, the Stuart brothers presented a valid claim that they were the first to discover gold mining possibilities in the Montana and Idaho Territories. Furthermore, it was the news of this discovery, which they themselves spread widely, and in the end started the gold rush to the northwest, which paved the way for future developments. After settling themselves and their stock, Granville Stuart built himself a log hut, the first house in the area. Thus the first settlement, primarily concerned with gold mining, was founded and called American Fork.

From this first settlement on American Fork, the Stuart brothers encountered and became acquainted with many early day prospectors and settlers, who passed through this part of the country on their way to other mining camps and settlements in the territory.

Among the first to come and stay at American Fork was "Tom Gold Digger," (Henry Thomas) an eccentric miner who built a primitive windlass, four sluice boxes and a shaft using wooden pegs as nails. He lived alone, worked hard, but managed to make only about one dollar and fifty cents a day and often less. He mined in and around the Montana Territory during the years of 1864-65, when Granville Stuart recalled "I lost sight of him altogether."

Henry Plummer, who was sheriff of the Montana Territory, and was later hanged by the vigilantes was the leader of the notorious gang of road agents which operated during the boom days of Virginia City. One day on his way to Bannack, he stopped at the Stuart cabin to have Granville mend his broken shotgun.

Richard Grant, known as "Handsome Grant," entered the services of the North West Company in 1816 and was stationed at Fort des Prairie now the site of Edmonton, Alberta. In 1821, the company merged with the Hudson's Bay Company and he became chief clerk. In 1836, he was promoted to the rank of chief trader, and was stationed at Fort Hall, Montana. He retired from that company in 1853 and spent the years until he died in 1862, ranching, trading, and traveling through the country. He was highly regarded among his frontier associates.

Major John Owen, was also well known to the Stuart brothers and owned and operated Fort Owen near Stevensville. With the exception of a seven month period, Major Owen was special Indian agent for the Flathead tribe from the fall of 1856 to July 13, 1862.

Robert Hereford, one of the men who had panned for gold at Benetsee Creek in 1856, also found a place in Montana history. He became a trader along Emigrant Road, a clerk of the First Territorial Legislature of Montana, and later assessor of Lewis and Clark County.

John M. Bozeman was another early day pioneer encountered by the Stuarts. He became known for developing the Bozeman Trail route from Colorado to Virginia City and had the city of Bozeman in Gallatin County named after him. He was murdered by Indians near the mouth of Mission Creek, on the Yellowstone River, below the town of Livingston in 1877.

Reece Anderson, a close friend of the Stuarts for many years while living at Gold Creek, later became a freighter along the Mullan Road.

Thomas Stuart came to Montana in April, 1864, and engaged in mining at Virginia City. Two years previously, while mining in the mountains of Colorado he received a letter from his brother Granville, who had heard about the rich diggings of Alder Gulch, and asked his brother to join him there. The letter was addressed only "Thomas Stuart, Colorado" and strangely enough reached him. This letter was shown to many of his mining friends and was the means of directing a large emigration from Colorado to the new gold fields in Montana.

James Stuart was born in 1832 in Virginia, and shortly after his birth, his parents moved to Illinois and then to Iowa where he spent most of his boyhood. In 1852, in the company of his father and brother Granville, he left for California where the lure of adventure beckoned. Due to a series of circumstances over which he had no control, he arrived at Gold Creek in the spring of 1858. In this new territory James Stuart found what he liked and where he was to remain throughout his life. Not particularly successful in any of his business ventures, including gold mining, he served the people of this adopted country in many ways. He was elected the first Sheriff in the territory; represented his county in the First Territorial Legislature at Bannack in 1864; was commissioned Lieutenant-Colonel by Governor Edgerton, and at the time of his death on September 30, 1873, was in the Indian service. He also led the Yellowstone Expedition of

1863, and was active in the search for a direct route from the East to Montana. He was senior warden of Flint Creek Lodge A. F. & A. M., and later junior warden of the Grand Lodge of Masons in Montana. Perhaps his place in history can best be stated by saying, that in a time when lawlessness was prevalent throughout the frontier and little could be done about it, he was a law abiding citizen, and always used his influence on the side of law and good order. James Stuart's early death at the age of 41 cut short a career that promised to be brilliant.

Granville Stuart, who was 2 years older than his brother James, was a dreamer and philosopher. Although the Stuart brothers planned and worked together, their amenities were quite different. Granville was a student of books and nature, and lover of all creation. He was a seeker after knowledge, a student of music and art, and somewhat of an artist. His pen and ink sketches, though crude, were well done. He had fine powers of observation, and described sincerely what he saw. Like his brother James, he was public spirited, having once served as a county commissioner.

After James' death, Granville went into the cattle industry, and moved into the east central part of the State. He became an important man of the cattle industry in the Northwest, being one of the organizers of the Montana Stock Growers' Association and for several years served as president on the Board of Stock Commissioners. Mr. Stuart, like many others, abandoned the cattle industry after the "big storm" during the winter of 1886-87. The cattle losses that winter amounted to more than twenty million dollars and brought to an end the boom in the cattle business on such a scale as it had been run before.

In 1891, he was appointed state land agent and personally selected some six hundred thousand acres of land which the Federal government had given to the State of Montana for school purposes. In 1894, he was appointed envoy and minister to the republics of Uruguay and Paraguay. In 1904, he was librarian of the Butte (Montana) Public Library, and in 1916 was commissioned by the State to write the history of Montana. He was at work on this at the time of his death in 1918.

In the winter of 1860, which was severe, the Stuart brothers did some digging at their claims when the weather permitted. During the long winter months everyone seemed to enjoy having company and doing some visiting. Captain (Handsome) Richard Grant, a rugged and very well liked trader, passed by often as did his son, John, who was ranching at Cottonwood, where the city of Deer Lodge now stands. Higgins and Worden had moved into the country that winter and established a place they called Hellgate a few miles below where Missoula is now located. The Stuarts made a trip there and on up the Bitterroot Valley, where Fort Owen was located, in quest of some books to read during the long winter.

Gold Creek itself was becoming known. By the spring of 1861, a number of claims were in operation and the town of American Fork was supported by three new towns, Pioneer, Dixie, and Little Blackfoot.

During the summer of 1862, Missoula County was formed as a part of the Washington Territory. American Fork was rechristened Gold Creek, and the towns of Dixie, Pike's Peak, Pioneer, and Blackfoot took on an identity. On July 14, 1862, an election was held, which was incidentally the first such an event in what is now Montana. Thirty men voted, and among those elected to office was Granville Stuart as one of the two county commissioners. James Stuart was named sheriff by unanimous vote.

By November 1st, news of new placer locations was reported of a gold discovery in the Beaverhead country and many men left for the Beaverhead mines. Even the old timers of American Fork gave up and found themselves at the Bannack City mines which proved both rich and extensive. In October, James Stuart and his friend Bill Fairweather (later to become famous for the discovery of gold at Alder Gulch) made the rounds of the mining camps on Gold Creek and found little to encourage them. On the 19th of November, the Stuarts left Anderson in charge of their stock and followed the rest to Bannack, not to mine, but to become engaged in the "butchering" business. It merely seemed to them expedient to go for the moment to a place where there was more gold to be had. They were patient and brave, but not lucky men.

Having again failed to hit "the pay streak" at Bannack, even in the butchering business, the Stuarts left there early the following spring. James organized a party to prospect for gold in the Yellowstone Valley, while Granville, the less restless brother, returned to Gold Creek and continued to prospect in that area. In June, James again joined Granville there.

Early in July a stampede started for the Alder Gulch District where Bill Fairweather and others who had planned to go with the James Stuart exploring party on the Yellowstone, but didn't quite make connections, discovered on their way back to Bannack the rich gold deposits in Alder Gulch. Left at Gold Creek were only a few men besides the three original prospectors, and the end of the month found James and Granville Stuart and their friend Reece Anderson in Virginia City with all of their belongings. Granville and Reece opened a blacksmith shop; James went into the grocery business. In Virginia City they remained aloof from the stampeding miners with "quartz on the brain," who raced from one camp to another in quest of the elusive thing which haunted them, and which they called gold.

The Stuarts didn't remain at Alder Gulch for long. When they left in 1864, it was not to return to Gold Creek, for it had been abandoned by this time; instead, they went to Cottonwood, a settlement that was started by Johnny Grant when he built himself a home there. In the fall of 1864, with a group of men, James and Granville helped organize the Deer Lodge Townsite Company. By general agreement, the village of Cottonwood was renamed Deer Lodge.

The town, located in a beautiful valley, enclosed by the Rocky Mountains that "rise in broken, jagged, and most inaccessible peaks," rapidly developed into the first important business, banking, cultural, and educational center of western Montana. In

many ways, this was the result of the activities of gold mining in the Gold Creek area, which had attracted hundreds of good people to the territory that was to grow into the Treasure State of Montana. The town of Deer Lodge continued to flourish during the 1870's. Its first newspaper was the New North-West which operated during the years 1868-1892.

Bishop Tuttle came to Deer Lodge on a missionary journey in 1878, and was given a plot of ground for the Episcopal Church. As he visited about town, he received a great deal of support for a plan to erect a building and bring a regular pastor into the community. The Reverend M. H. Gilbert became the first pastor in 1871 and a church building was begun in 1875. It was not until 1877 that the church was completed. The Presbyterian Church was organized in Deer Lodge in 1872, with the Reverend Wiley Mountjoy as its first pastor.

The first school of college rank in Montana was the Montana Collegiate Institute which opened in Deer Lodge in 1878. E. H. Irvine was the leader in organizing support for the school. In 1882 a church movement was begun to acquire the property of the "Institute." The plan was successful, and in 1883, the Montana Presbytery took over the institution and secured its charter from the Legislature on March 3, 1883. The school was operated successfully for a number of years until about 1900, when it was consolidated with a Methodist School in Helena.

The first Federal penitentiary was located in Deer Lodge and it became the State penitentiary in 1893.

The Northern Pacific Railroad reached the eastern Montana border early in the summer of 1881, and Miles City in the late autumn. In 1882 it was extended as far as Livingston. Between Garrison and Gold Creek on Sept. 8, 1883, the ceremony of driving the golden spike completed the construction of the first transcontinental line across Montana, connecting the Pacific Coast with the Atlantic.

The Chicago, Milwaukee, St. Paul and Pacific Railroad located its shops in Montana at Deer Lodge in 1908 and these shops still help support the town. Other towns of any size and importance in the county are Avon, Garrison, Elliston, Helmville, and Ovando.

Other industries within the county or nearby that provide an income are; the Montana Phosphate Products Company which mines phosphate rock near Garrison, where the phosphate rock is loaded on railroad cars for shipment to Trail, Canada for processing. There are many workers at the Anaconda Mining Company that live in Deer Lodge who travel to and from work on the "Hill" in Anaconda. This company also has extensive timber interests in the northern part of the county which employs a large number of workers.

The Deer Lodge Valley and the Blackfoot Valley were the early farming centers of the territorial days and as of today are still important agricultural areas in the State.

Range livestock is the major agricultural industry and most farms have some cattle. According to the Montana Agricultural Statistics, there are 38,000 head of cattle in the county, comprising a number of purebred Herefords, Angus, and Shorthorn herds.

At the last census the county had about 27,000 head of sheep. Several of the bands are of the finest purebred Rambouillet sheep in the northwest. Most of the sheep are run in large bands on range land, although there are many small farm flock operators.

The swine industry in the county has continued to grow, and some of the farmers in the Deer Lodge Valley are starting to raise litters the year round, to increase their supply and assure a steady farm income. Most of the market hogs raised are sold at packing plants in Butte and the Montana Meat Company in Helena.

There are numerous dairies within the area supplying milk to Deer Lodge, Butte, Anaconda, and Helena. Many of them are very modern and use improved farm management practices. According to the State Engineer's Water Resources Survey in 1958, there were 63,262 acres of irrigated land on 182 farms. Crops produced on the irrigated land include small grains, potatoes and hay, of which approximately 80,000 tons are produced each year. Powell County farmers produce mostly improved varieties of small grains, consisting of barley, oats, and wheat. About 4,000 acres of Certified Gem Potatoes are grown which are of a superior quality for both table use and seed stock. Most of the potato seed stock is sold in the states of Washington and Idaho. The hay that is raised is of superior quality and usually fed with very little concentrates to sheep and cattle. Both spring and winter varieties of wheat are grown. There is an excess of hay, barley, wheat, and oats raised over that is fed locally to livestock. Within recent years, there has been more interest in feeding cattle and swine by farmers producing an excess of the feeds, grain and hay.

Hare's Greenhouse, located about four miles south of Deer Lodge has a large export market out of the county for nursery and greenhouse products.

Railroad and highway transportation into the county consists of two major east-west railroads and one main U. S. Highway across Montana.

Entering the county on the east through the Mullan Pass from Helena, is one of the main lines of the Northern Pacific Railway which crosses the southern part of the county, and connects with the other main line from Butte at the town of Garrison, thence westward. The Chicago, Milwaukee, St. Paul and Pacific Railroad enters the county from the south passing through the town of Deer Lodge to Garrison. From there the two railroads run parallel along Clark Fork River to Missoula, thence separate and extend on to the Pacific Coast.

Following almost the same routing as the railroads, U. S. Highway 10 North from Helena and U. S. Highway 10 South from Butte make connections at Garrison, where they form U. S. Highway 10.

State Highways serving the area are No. 31 which is maintained as an improved graded road and starts two miles west of Drummond through Helmville, Ovando and follows State Highway No. 20 west out of the county. Another improved oil road is State Highway No. 20 which follows a route from east to west across the central part of the county, where it connects with U. S. Highway 10 at Bonner, in Missoula County. Powell County has good improved graded roads to all the outlying rural communities. In the northern part there is a wilderness area of approximately 324 square miles accessible to travel by pack trails only.

Numerous motor freight lines travel across the county from both east and west along the main highway routes. Passenger travel is available by bus service over these same highways and air travel to all parts of the United States is used within a radius of 75 miles at Missoula, Helena, and Butte.

The last United States Census in 1950, listed the population of Powell County as 6,301 people. It has an area of 2,337 square miles, placing it 30th largest county in the State.

CLIMATE

Powell County, located along the west slopes of the Continental Divide, is quite irregular in topography, and experiences the large variations in climate within short distances that one would expect of an area ranging in elevation from about 4,000 feet to over 10,000 feet above sea-level. The two main drainage areas are formed by the Nevada Creek-Big Blackfoot River combination in the north, and by the Little Blackfoot River-Clark Fork combination centrally and in the south, but the source areas of these streams differ considerably in climate characteristics. The climate may be classified as modified continental, occasionally reflecting tendencies for periods of several months to be similar to higher elevation Pacific slope climates.

As is the case with all of Montana's counties situated near or along the Continental Divide, Powell County has marked seasonal variations, with a pronounced difference in distribution of monthly average precipitation between mountain and valley areas. Briefly, the valleys are relatively dry during the colder months and wet during the late spring and early summer, while the wettest part of the year in the mountains is from mid-winter to early spring. Annual precipitation averages vary considerably, heaviest in the mountains of the northern sections of the county, lightest in the Deer Lodge Valley. While Deer Lodge averages only a little over 10 inches, Ovando 1 SW averages around 16 inches annually.

In the valleys the wet season generally covers the May-July three-month period, with only small variations throughout the balance of the year. In the mountains, however, the average pattern is more complicated, and as a result, more variable. At high elevations the wettest periods are fall and winter, and May-June, although variability is

high from year to year. Precipitation during the colder half of the year is often of the light, steady type that continues for hours, while during the warmer months showers and thunderstorms are the rule, with many clear mornings and partly cloudy to occasionally cloudy afternoons. Winter months in the northern half of the county produce much cloudy weather, and nearly all winter precipitation over the entire county falls as snow.

Winters are cold by most accepted standards, January being the coldest month. Summers, although fairly warm, seldom produce oppressive heat, and even the warmest days of a year (most commonly in the 90-99 range) are followed by pleasantly cool nights. Temperatures average well below freezing during almost all winter months; July averages range between 60° and 65°. Growing seasons are generally too short for tender crops, but hardy grains and grasses do very well. The average annual number of days between last in spring and first in fall occurrences of 32° is about 40 at Ovando and 95 at Deer Lodge. The same figures for 28° are 77 and 126 days and for 24°, 120 and 151 days.

There are only two long-record stations in Powell County, Ovando 1 SW and Deer Lodge. During recent years records have been started at Elliston and Ovando 7 WNW, and the Drummond record has been made close to the western boundary. Listed are samples from the records for all five points, the period covered by each being indicated:

TEMPERATURE IN DEGREES

	Highest of Record	Lowest Record	January Average	July Average
Deer Lodge (1931-1955)	100	—37	20.8	64.9
Ovando 1 SW (1931-1955)	99	—52	15.4	61.7
Drummond (1938-1955)	101	—40	17.3	62.3
Ovando 7 WNW (1950-1957)	100	—51	14.0	60.4
Elliston (1952-1957)	97	—41	18.8	61.1

PRECIPITATION IN INCHES

	Yearly Average	Growing Season Average*	Percent Falling Growing Season*	Wettest Year	Driest Year
Deer Lodge	10.28	7.31	71	14.67 (1938)	5.91 (1935)
Ovando 1 SW	15.85	7.72	65	24.90 (1933)	10.54 (1935)
Drummond	12.05	8.27	70	15.79 (1941)	8.79 (1952)
Ovando 7 WNW	12.65	7.63	67	16.36 (1953)	8.93 (1957)
Elliston	15.31	10.32	67	19.96 (1955)	12.69 (1956)

*Growing season, April through September

SOILS

Powell County lies in the Columbia Basin portion of western Montana and reaches the Continental Divide in the northeast part of the county. The county is drained by the Clark Fork River and Little Blackfoot River which converge near Garrison and the main Blackfoot River which converges with the Clark Fork River at Bonner. Physiographically the county consists of high mountain ranges with sediment filled valleys on either side of the main streams. Elevations range from above 8,500 feet along the Continental Divide to about 4,000 feet at the point where the Clark Fork and Blackfoot Rivers leave the county.

The character of soils is determined by parent material, topography, vegetation, climate and time. Since all of these factors vary widely in Powell County a large variety of soils have been formed. Geologic materials found in the county include granites, rhyolites, basalt, argillites, quartzites, limestone, shales, sandstone, unconsolidated valley filling sediments and recent alluvium. The agricultural soils are largely developed from the valley filling materials and from alluvium.

Silt loams to clay loams predominate, with some sandy soils and appreciable areas of clay soils in local areas. Many of the soils developed in valley filling sediments contain a high percentage of gravel, cobbles and stones and in some cases these coarse materials make up a high enough part of the soil section to seriously limit their moisture holding capacity. Some soils are too stony for agricultural use.

Soils of the grassland and farming areas belong in the Chestnut and Chernozem zonal groups with significant inclusions of Regosols and Lithosols and with alluvial and Humic Gley soils in the stream valleys. In areas where soils were developed under a dense conifer forest, the soils belong in the Gray Wooded and Podsol great soil groups. Most of the Gray Wooded and Podsol soils in this county are still in native forests. Because of the short growing season associated with soils in this area, they are best suited for woodland or wildlife use.

Problems associated with irrigated soils in this county include (1) shallow or very gravelly or cobbly soils having low production potential, (2) soils with a combined problem of wetness and salinity or very high line and (3) soils which are toxic to plants because they have been irrigated with water containing smelter waste that is charged with toxic minerals. Drainage of wet soils is generally feasible but further studies are needed on soils damaged by smelter wastes to determine feasibility and best methods of reclamation.

SOURCES OF WATER SUPPLY

In Powell County the available sources of water supply are from the Clark Fork River and its tributaries.

Early day prospectors and settlers gave segments of the Clark Fork River different names along its course westward to the Columbia. From where the Clark Fork enters Powell County on the south to its confluence with the Little Blackfoot River near Garrison, it was called the Deer Lodge River. From the mouth of the Little Blackfoot River to the town of Bonner in Missoula County, the stream was known as the Hellgate River. Water rights have been filed and recorded under all three names—Deer Lodge, Hellgate, and Clark Fork River.

The principal streams which supply water for irrigation, stock, and other purposes are the Clark Fork River and tributary streams of Race Track, Dempsey, Powell, Tin Cup Joe, Peterson, Cottonwood, Baggs, Reese Anderson Hollow, Fred Burr, Little Blackfoot River, Trout, Snowshoe, Ophir, Dog, Three Mile, Six Mile, Gimlet, Rock, Willow, Warm Springs, Gold, Dunkleberg, Griff, Big Blackfoot River, Nevada, Mill, Washington, Jefferson, Gallagher, Lincoln Slough, Douglas, Murray, Cottonwood (trib. to Douglas), Your Name, Wales, North Fork of the Big Blackfoot, Warren, Dunham, McCabe, Rat and Shanley Creeks.

The most prominent irrigation projects developed in the county are the Nevada Creek Storage Project, West Side Ditch Company, and the Kohrs-Manning Ditch Company. The State Water Conservation Board has constructed on Nevada Creek a water storage project consisting of a dam, reservoir, and distribution system for irrigation. The irrigable area is located in the Nevada Creek Valley between the towns of Finn and Helmville. The West Side Ditch Company is composed of a group of farmers that incorporated for the purpose of supplying water for the irrigation of their land in the southern part of the county. Point of diversion of the West Side Ditch Company canal is from the Clark Fork River (Deer Lodge) one half mile south of the Deer Lodge-Powell County line. The Kohrs-Manning Ditch Company is not incorporated and operates as a privately owned mutual system. It is one of the largest private irrigation projects operating in the county and its main canal diverts from the Clark Fork River (Deer Lodge) west of the town of Deer Lodge to irrigate several hundred acres in the immediate vicinity.

Many of the streams in the county have been adjudicated by court procedures to determine the priority and use of water from them. Those streams having water rights decreed by court are as follows: Lost Cr., Dry Modesty Cr. (Quinlan Slough), Race Track Cr., Albicaulis and Alpine Lakes, Bowman Lakes, Oro Fino Cr., Caribou Cr., Dempsey Cr., Blind Lake (Ryan), Alex's Gul., Powell Cr., Peterson Cr., Tin Cup Joe Cr., Cottonwood Cr. (trib. to Deer Lodge River), Reese Anderson Hollow Cr., Mullan Cr., O'Neill Cr., Uncle George's Gul., Trout Cr., Ophir Cr., Three Mile Cr., Six Mile Cr., Rock Cr., Willow Cr., Big and Little Gold Cr. Lakes, Gold Cr., Perriman's Cr., Dunkleberg Cr., Perkins Cr., Griff Cr., Nevada Cr., Castlemans Cr., Shores Slough, Douglas Cr., Cottonwood Cr.

(trib. to Douglas), McElwain Cr., Your Name Cr., North Fork Blackfoot River (Salmon Trout Cr.), Ward Cr., Warren Cr., Dunham Cr., McCabe Cr., and North Fork Shanley Cr.

STREAM GAGING STATIONS

The U. S. Geological Survey measures the flow of streams, cooperating with funds supplied by several State and Federal agencies. The results are published yearly in book form as Water-Supply Papers, the latest being for the year 1956. The later records may be obtained prior to publication from the U. S. Geological Survey. That agency's records and reports have been used in the preparation of this resume.

Data given below cover the stream gaging records which are available for Powell County from the beginning of measurements through the water year 1957. The water year begins October 1 and ends September 30 of the following year.

The irrigated acreage figures shown for ditch diversions above the gage, are taken from the final results of the Water Resources Survey for the active gaging stations operated at the present time. For the gaging stations now discontinued, the acreage figures above the gage were estimated by the Geological Survey at the date of operation.

Following are equivalents useful in converting from one unit of measurement to another:

- (a) In Montana, one cubic foot per second equals 40 miner's inches.
- (b) One acre-foot is the amount of water required to cover an acre one foot deep.
- (c) One cubic foot per second will nearly equal two acre-feet (1.983) in 24 hours.
- (d) A flow of 100 miner's inches will equal five acre-feet in 24 hours.
- (e) One miner's inch flowing continuously for 30 days will cover one acre 1½ feet deep.

For reference purposes, the stream gaging stations are listed in downstream order.

Racetrack Creek Near Anaconda (Discontinued)

The chain gage was about 12 miles upstream from mouth and 10 miles north of Anaconda. The drainage area is about 38 square miles. Intermittent records were obtained from July 1911 to Nov. 1912. The maximum discharge observed was 515 cfs (June 10-14, 1912) and the minimum observed 16 cfs (at times in Feb. and Mar. 1912).

Racetrack Creek Below Granite Creek Near Anaconda*

The water-stage recorder is 30 feet upstream from bridge about 2 miles below Granite Creek, 9½ miles upstream from mouth and 10 miles north of Anaconda. The drainage area is 39.5 square miles. Records are available from July 24, 1957 to date. Intermittent gage heights only were obtained from Apr. 1914 to Sept. 1917. Some intermittent records have been published for Racetrack Creek near Anaconda at a site about 3 miles upstream from July 1911 to Nov. 1912.

Little Blackfoot River Near Elliston (Discontinued)

The staff gage was about 500 feet below the Little Blackfoot Ranger Station in the Helena National Forest and about 5 miles southeast of Elliston. The drainage area is 59 square miles. Intermittent gage-heights records only are available from Sept. 29, 1910 to September 28, 1913.

Blackfoot River Near Helmville (Discontinued)

The water-stage recorder was 50 feet downstream from county highway bridge, 2 miles downstream from Arrastra Creek and 5 miles northeast of Helmville. The drainage area is 481 square miles. Records are available from Sept. 1940 to Oct. 1953. The maximum discharge was 6,040 cfs (June 5, 1953) and the minimum daily 50 cfs (Jan. 3, 1950). The average discharge for 13 years (1941-53) was 352 cfs or 254,800 acre-feet per year. The highest annual runoff was 370,670 acre-feet (1951) and the lowest 83,730 acre-feet (1941). There were diversions above the station for irrigation of about 2,000 acres of which about 500 were below the station.

Nevada Creek Above Reservoir Near Finn*

The water-stage recorder is a quarter of a mile downstream from Gallagher Creek, 2 miles upstream from Buffalo Creek and 3 miles west of Finn. The drainage area is 116 square miles. Records are available from April 1939 to date. Prior to April 30, 1942, a wire-weight gage seven-eighths mile downstream and Apr. 30, 1942 to July 26, 1953, a water-stage recorder at site 1 mile downstream were used. The maximum discharge was 1,800 cfs (June 2, 1953) and the minimum probably less than 2 cfs at times in Jan. and Feb. 1944. The average discharge for 18 years (1940-57) was 30.6 cfs or 22,150 acre-feet per year. The highest annual runoff was 43,060 acre-feet (1948) and the lowest 8,730 (1941). There are diversions above station for irrigation of about 6,858 acres.

Nevada Creek Near Finn (Discontinued)

The staff gage was about 2 miles upstream from Deer Gulch and 6 miles west of Finn. The drainage area is 144 square miles. Records are available from June 1934 to Jan. 1939. The maximum discharge was 630 cfs (Apr. 11, 1936) and the minimum observed 4.6 cfs (Sept. 18-20, 1937). The highest annual runoff was 29,970 acre-feet (1939) and the lowest 11,980 acre-feet (1938). There were diversions above station for irrigation of about 2,500 acres.

Nevada Creek Reservoir Near Finn*

The dam, which is on Nevada Creek 7 miles west of Finn was constructed by the State Water Conservation Board. It has a drainage area of 145 square miles. The reservoir has a usable capacity of 12,640 acre-feet. It furnishes a full supply for 2,010 acres with 461 acres potentially irrigable under present ditch facilities. Month-end reservoir contents as available have been published in U. S. Geological Survey Water-Supply Papers from 1940 to date. Records have been furnished by the State Water Conservation Board.

Nevada Creek Near Helmville (Discontinued)

The wire-weight gage was 30 feet downstream from Douglas Creek diversion canal, 2 miles downstream from Nevada Creek Reservoir and 6 miles southeast of Helmville. The drainage area is 165 square miles. Records are available for only the irrigation seasons from May 1946 to Sept. 1949. The maximum discharge observed was 470 cfs (May 22, 1948) and the minimum observed 3.6 cfs (Aug. 16-24, 1946). Diversions above station irrigated about 4,500 acres of which 2,000 were below station. The flow is regulated by Nevada Creek Reservoir.

Douglas Creek Near Helmville (Discontinued)

The staff gage was at the county bridge on the Helmville-Drummond road 4 miles southwest of Helmville. The drainage area is 84.8 square miles. Fragmentary records are available from Apr. 1946 to Sept. 1947. The maximum discharge observed was 73 cfs (June 10, 1947) and the minimum observed 1.2 cfs (Sept. 5, 1946). There were diversions above the station for irrigating about 1,200 acres.

North Fork Blackfoot River Near Ovando (Discontinued)

The wire-weight gage was at Pitkins ranch 11 miles northeast of Ovando. The drainage area is 228 square miles. Records are available for the irrigation seasons from June 1921 through Sept. 1923. The peak flow during the flood of May 1948 was determined at 4,380 cfs by a slope-area determination. The maximum discharge observed was 2,900 cfs (June 5, 1922) and minimum observed 27 cfs (Nov. 6-16, 1921 and Apr. 27, 1922). The actual minimum was not determined but probably occurred during periods of no record. A few small diversions for irrigation were above station.

Blackfoot River Near Ovando*

The water-stage recorder is a quarter of a mile upstream from Monture Creek and 5 miles west of Ovando. The drainage area is 1,274 square miles. Records are available from Sept. 1940 to date. The maximum discharge was 14,600 cfs (June 4, 1953) and the minimum daily 100 cfs (Jan. 20, 1954). The average discharge for 17 years (1941-57) was 810 cfs or 586,400 acre-feet per year. The highest annual runoff was 891,800 acre-feet (1951) and the lowest 227,800 acre-feet (1941). There are diversions above station for irrigating about 19,962 acres.

Miscellaneous Discharge Measurements

Measurements of discharge at points other than regular gaging stations are made occasionally. These are reported in annual Geological Survey Water-Supply Papers in lists at the end of each report.

*These gaging stations are now in operation (1959).

MINING

Powell County has the unique distinction of being the birthplace of mining in Montana, for it was here, at the mouth of Gold Creek in the year 1852, that the half-breed Indian, Francois Finley, found gold. Ten years later, James and Granville Stuart

started the State's first known placer mining operations on this creek. Gold Creek's initial glitter was soon dimmed by the sparkling discoveries at Bannack, Virginia City, Confederate Gulch, Last Chance Gulch, and many others. Actually, the placer mines at Helena (Last Chance Gulch) led indirectly to the development of mining in Powell County. Prospectors spreading out from the rich placers soon crossed the Continental Divide, first in search of gold-bearing gravels such as were found along Ophir, Finn, Oro Fino, Caribou, and Dry Cottonwood Creeks. The placers were not exceptionally rich and were soon abandoned, most being worked out by 1890. Interest then turned to gold and silver lodes, most of which were found in and along the margins of the Boulder batholith, a huge granitic mass extending from south of Butte to Helena. Several mining districts were established, but it was not until the golden spike was driven on the Northern Pacific Railway near Garrison in 1883 and the first train crossed the Continental Divide that the lode mines became productive. From about 1870 to the present (1959) the county has produced an estimated \$11,000,000 in gold, silver, lead, zinc, and copper. Gold and silver account for the bulk of production. Since the decline of silver prices the mines have been worked only sporadically, and prior to 1912 many mines were forced to close because of the increasing amount of zinc in the ore at depth. Zinc could not be profitably separated from the ore prior to that time, and furthermore, lead ores containing zinc are penalized at the smelter.

At present, Powell County has the most productive phosphate mines in the State, and since the decline of metal mining, nonmetallics have contributed the bulk of mineral production in the county, and will, undoubtedly, continue to do so in the future. It is estimated that since 1928 Powell County has produced 4,369,000 tons of phosphate rock valued at about \$28,488,000 or 80 per cent of the State's total.

Geologically Powell County straddles rocks which range in age from Precambrian to Recent. The Precambrian Belt series occupies most of the northern one third of the County, and sedimentary rock of Cambrian to Cenozoic ages occurs in the central and southern portions. Cretaceous volcanic rocks, basalt, andesite, tuff, and breccia, with Tertiary rhyolite and dacite are found along the eastern border of the county overlying parts of the Boulder granitic batholith. The Mt. Powell granitic batholith occupies a portion of southwestern Powell County. Cenozoic "lake beds" and Recent alluvium fill Deer Lodge Valley.

Such a diversity of geologic conditions has resulted in a like diversity of mineral deposits. The Phosphoria formation, which contains workable beds of phosphate rock, is found in faulted and upturned beds in a large area near Garrison, Elliston, and Avon. Limestones, some of which are suitable for making lime, also occur abundantly in this area. Deposits of gold, silver, lead, zinc, and a little copper are found as veins in and around the margins of the Boulder batholith. Sand and gravel fill portions of the larger valleys and sapphires can be panned from auriferous gravels along Dry Cottonwood Creek.

The important mining districts are described below:

Big Blackfoot (Helmville) District

Discovered in the 1860's, the placer deposits of the Big Blackfoot or Helmville District have been worked intermittently since. The placers from which gold is recovered by sluicing or hydraulicking are found along Nevada Creek and other nearby tributaries of the Big Blackfoot River. Approximately \$95,000 has been realized from gold production in this District.

Elliston (Ontario, Nigger Hill) District

The Elliston District is on the west slope of the Continental Divide. The metal mines are about 8 miles south of Elliston, and the Elliston phosphate field lies north of the town.

The first discovery of gold in the District was probably made before 1870, but it was not until the railroad reached the area that the mines became productive. Between 1890 and 1909 numerous small gold and silver mines were active. Since that time metal mining has been sporadic. Elliston has been the most productive gold-silver lode mining District in the county, having produced ores of these metals valued at approximately \$3,500,000.

Volcanic rock, andesite and latite, underlie the western part of the area, forming the roof of the Boulder batholith exposed to the east. Limestones, sandstones, and shales occupy the northern portion of the District, whereas rhyolites cover the area west and southwest of Elliston.

Gold and silver occur with sulfide minerals in veins in quartz monozonite and the andesitic volcanic rocks. Although most of the mineral deposits were valued for lead and silver, several contained appreciable amounts of gold.

A list of metal mines includes the following: Blue Bell, Big Dick (Evening Star), Julia, Twin City, Monarch, Ontario, Sadie, Charter Oak, Flora, Black Joe, Brooklyn, and others.

Phosphate-bearing beds in the Phosphoria formation were first noticed in 1911 by J. T. Pardee of the U. S. Geological Survey while he was examining the Northern Pacific Railroad's land grants. It has been estimated that more than 86,000,000 tons of phosphate rock are available in the Elliston field. The phosphate beds, which range in thickness from 3 to 5 feet and average about 65 per cent tricalcium phosphate, are geologically similar to those in the Garrison District, but are structurally more disturbed. Although the District has encouraging possibilities, the mines have not been developed to any great extent. Potential mines include the Little Blackfoot River (Elliston), Dog Creek, and the Jack Pine which was recently (1959) purchased by the Bunker Hill Corporation.

The most active property in the District is the limestone quarry just north of Elliston. Here, at the Elliston Lime Company's mill, limestone is converted to quicklime and hydrated lime. Lime has been burned at this locality for 50 years or more and operations have been practically continuous.

Emery (Zosell) District

Narrow but rich gold and silver bearing veins were discovered in the Emery District in 1888. However, as was the case in most of the western mining districts, placer gold first called attention to the area in 1872. The District lies along the west slope of the Continental Divide about 8 miles east-southeast of Deer Lodge. Since the inception of mining an estimated \$2,300,000 has been derived from the production of gold, silver, and lead. About 45 per cent of this total was realized from gold, 45 per cent from silver, and the remaining 10 per cent from lead. The Emery Mine far outshadowed all other mines in extent of development work and production. Other notable mines include: Blue Eyed Maggie, Bonanza, Hidden Hand, Emma Darling, Argus, Sterrett, Kirby, Black Eyed May, William Coleman, and Bell.

The District is underlain by andesitic and basaltic flows, tuffs, and breccias. Tertiary lake bed sediments overlie the volcanics to the west and the Boulder batholith crops out to the east.

Most of the important ore deposits are confined to narrow fissure veins in the andesite. Although narrow, the veins are persistent along the strike and dip and are moderately rich, ranging from \$30 to \$60 per ton in gold and silver. Locally the sulfide minerals, pyrite, arsenopyrite, sphalerite, and galena, have replaced broken rock and are also found along bedding planes and in amygdaloidal lavas.

Finn (Washington, Jefferson, and Buffalo Gulches)

Washington, Jefferson, and Buffalo Gulches drain part of the western slope of the Continental Divide near Finn, about 15 miles north of Avon. These streams have yielded moderate amounts of placer gold, most of which was produced prior to 1890. Since that time erratic production from both placers and small lode mines has been reported. To date, approximately \$200,000 worth of gold has been produced.

Garrison

The Garrison area is the oldest and most important producer of phosphate rock in Montana. It lies north of Garrison and Avon.

The district is underlain by sedimentary rocks which range in age from Paleozoic to Cretaceous. It is within this sequence that the phosphate-bearing beds of the Phosphoria formation are found. Most of the producing mines are along the Garrison anticline which has tilted the Phosphoria to dips of 40° to 65° on the flanks and 20° to 40° on the nose. West of the anticline the beds are tightly folded and show very steep dips. Actually, the Phosphoria formation is between 50 and 130 feet thick, consisting of chert,

sandstones, shales, and an upper phosphate-bearing member of high-grade oolitic phosphate rock up to 5 feet thick. The grade of the ore is variable with some samples containing as high as 79.06 per cent tricalcium phosphate.

The Anderson Mine was the first commercial phosphate mine in the State. It is also the largest underground producer of fertilizer grade phosphate in the Northwest and the deepest underground phosphate mine in the United States. Regular shipments have been made from the property since 1930. Other important mines are the Gravely and Relyea, the latter being the largest independent producer of phosphate rock in Montana. Several properties are worked intermittently; they are: The Luke, Gimlet, Bishop, the prospects along Warm Spring Creek, and the Spokane Chemical Company prospects.

Ophir (Snowshoe or Deadwood) District

In 1865 placer gold was discovered along Ophir, Carpenter, and Snowshoe Gulches, 7 miles northeast of Avon. Although short lived, the placers proved to be exceptionally rich, and about \$3,500,000 in gold was recovered prior to 1875. Lode mines yielded an additional \$225,000 in gold, silver, lead, and copper from 1900 to the 1930's. Estimated total production for the District is about \$3,840,000 — making it the most productive precious and base metal mining District in Powell County. Of interest is the report that at the height of placer mining a gold nugget worth \$3,280 was found on the McKay claim in Deadwood Gulch, a branch of Snowshoe Gulch. This nugget is supposedly the largest ever found in Montana.

The Ophir District is underlain predominantly by limestones, shales, and quartzites of Paleozoic age. East and west of Ophir Gulch small masses of quartz-monzonite have intruded the sediments. Tertiary rhyolites cover a large area south of Ophir.

The ore deposits which are probably genetically related to the quartz-monzonite, are found predominantly in limestone. Ruby silver, gold tellurides, tetrahedrite, pyrite, and chalcopyrite occur in irregular ore bodies which have been described as cylinders or pipes.

Most productive of the mines were: The Victory which produced ore valued at \$40,000 from brecciated limestone near a quartz-monzonite intrusive; the Fairview with a production of \$30,000 in precious metals from veins in quartz-monzonite; the Ajax which produced \$48,000 worth of gold from pipelike deposits in limestone; and the Little Daisy which produced \$3,000 worth of gold-silver ore from veins at the contact between limestone and quartz-monzonite. Other mines include the Opsata, McKay, Denver, Ophir, Flagstaff, Montana, Minnie Healy, Arnold, and Wall Street.

Oro Fino

Along the western slope of the Continental Divide and east of the Deer Lodge Valley between Warm Springs and Deer Lodge are several placer and lode deposits that have been worked periodically for the last 75 years. The aggregate production is

about \$350,000, most of which represents the value of silver from the Champion Mine. At present the most notable feature of this District is the presence of sapphires, some of gem quality, in the gravels of Dry Cottonwood Creek.

Pioneer (Gold Creek) District

As mentioned previously, Gold Creek was the site of the first gold discovery in Montana. Although primarily a placer mining district, some lode mines have been developed at the head of Gold and Little Gold Creeks. Although none of the lode deposits have been particularly important, erosion of the gold-bearing deposits has been instrumental in forming extensive placer deposits in Gold, Little Gold, Pioneer, and Pikes Peak Creeks. The District has been a steady producer of gold ever since its discovery. In 1934 a gold dredge on Pioneer Creek was the most productive in Montana. Since that time production has declined. Total production of gold has exceeded \$1,307,000.

Other Districts

Small creeks in other parts of Powell County have yielded minor amounts of gold, but their production is very minor. These Districts include Racetrack (Danielsville), Blossburg, Douglas Creek, Top O'Deep, and Your Name Creek.

SOIL CONSERVATION DISTRICTS

Two Soil Conservation Districts were organized in Powell County in 1949. These are the North Powell Soil Conservation District which covers that part of Powell County lying north of the line between townships 10 North and 11 North, and the Deer Lodge Valley Soil Conservation District which includes the balance of the county to the south. Two Districts were organized because of the variance in agriculture and the presence of natural barriers separating the two areas. Production of livestock is the main enterprise in the North Powell District with grasses and legumes for hay being the major crops grown. A large portion of the forage is obtained from wild hayland. Ample water for irrigation is obtained from the streams flowing out of the mountains and from the Nevada Creek Irrigation Reservoir.

The major problems facing farmers and ranchers in this area arise either directly or indirectly from lack of balance between summer range and feed resources. It is estimated that currently there are sufficient feed resources for half again as many livestock as are now produced in the valley if there was adequate range for summer grazing. An attempt to force this balance has resulted in over-grazing many of the ranges and they are showing signs of deterioration and erosion which only aggravates the condition. To do everything possible to alleviate this condition is perhaps the main objective of the District.

The total area in North Powell District is 940,969 acres of which 450,860 are agricultural land. The balance is forest land belonging to the Anaconda Company, railroads, and the United States Government. There are 107 operating units in this area of which 59 are currently District cooperators.

Since the organization of the District in 1949, 3,483 acres have been planted to grass, 28.3 miles of new main irrigation ditches have been constructed, 393 acres of hayland have been drained and the irrigation systems improved on 3,707 acres.

The Deer Lodge Valley District has a more varied agriculture than the North Powell District. The lower elevation and soils conditions permit cash crops such as small grains and potatoes. A large per cent of land farmed is irrigated from streams coming into the valley from either side and by diversion out of the Clark Fork River which bisects the valley. Outlying areas of the Deer Lodge Valley District include Gold Creek, Avon, and Elliston. In these areas the agriculture is mostly beef production. Many fine herds of purebred Herefords are to be found in the District and the raising of purebred cattle is a major enterprise.

The greatest problem facing the ranchers in the Deer Lodge Valley District is the seasonally short water supply. In some sections the soils are very porous and a large amount of irrigation water is lost through seepage from the ditches. The District has been trying to consolidate the main supply ditches and to line them with concrete. So far not much success has been realized due largely to water right difficulties and the high cost of construction.

The Deer Lodge Valley District has 715,710 acres in its boundaries of which 472,000 acres are agricultural land. There are 250 operating units in the District of which 110 are currently district cooperators. Since the District was organized in 1949, the Soil Conservation Service has assisted the District in establishing 154 miles of new ditch, 1,500 acres of land have been drained and improved irrigation systems have been established on 18,000 acres. These are just a few of the practices established.

Each District is governed by a board of five supervisors who are elected by the land occupiers of the District. They carry out a program of soil erosion control, water conservation, soil fertility management and proper land use. They also have the power, under State law, to request assistance from any local, State or Federal agency to assist in carrying out the District's program.

Considerable technical assistance is provided farm and ranch operators to develop basic conservation plans for their land. These plans include detailed soil surveys, range site and condition surveys, ground water surveys and other surveys of the engineering type. The various surveys and investigations indicate proper land use and the kind and amount of conservation work needed to prevent erosion and to develop the resources of the farm and/or ranch to the maximum. The surveys provide basic information needed for the conservation plans developed by individuals or groups of farmers or ranchers. The cooperator develops his conservation plan using technical assistance of the Soil Conservation Service. The Service technicians interprets the surveys and advises the operator concerning limitations and hazards of land use and recommends needed conservation treatment. The cooperator makes the final decisions that are entered in the plan as to what will be done and when the measures will be carried out. When a plan is completed the cooperator is extended further technical assistance for installation of planned land-use adjustment and application of conservation treatment as called for in the conservation plan.

FISHERIES

Headwaters of the South Fork of the Flathead River, and Big Salmon Lake found in the northern part of this county are the last stronghold of Montana's native west slope cutthroat trout. Many other fine trout waters are found in this county. Of statewide importance are the Blackfoot River providing fine rainbow trout fishing and the Little Blackfoot River which provides good brown trout fishing.

NATIONAL FORESTS

National forest lands are an important part of the assets of Powell County. They furnish water, recreation, wildlife, timber, forage and minerals from lands managed as multiple use public properties. Most of these lands were set aside from the public domain around 1900.

National forest lands in Powell County include portions of the Deer Lodge, Helena, Lolo, and Flathead National Forests. They are managed by forest rangers stationed at Deer Lodge, Helena, Lincoln, Seeley Lake, and Big Prairie. There are a total of 633,796 acres of national forest land in the county.

The first major activity of the white men on the Helena National Forest in Powell County was the construction of the Mullan Road. Lieutenant Mullan built this famous road for the United States Army through a pass on the Continental Divide now called Mullan Pass, located on the Helena Ranger District. He first crossed this pass on March 22, 1854. At this pass in 1862 the first Masonic meeting was held in what is now Montana and which was then in the Dakota Territory by a group of settlers in route to Oregon. A bronze and rock monument now marks this site. The discovery of gold brought hordes of prospectors to portions of the Helena forest in 1862. A gold mining center developed in the now ghost town of Blackfoot City six miles north of Avon. There were smaller camps on various side drainages of the Little Blackfoot River. The placer diggings were soon exhausted. There is little mining activity on the Helena National Forest part of Powell County today; however, placer and lode mining operations have contributed to considerable soil disturbance, especially in the valley bottoms of important drainages such as Gold Creek and Pikes Peak Creek.

Water from the national forests is one of their most valuable products. Water from these lands is used extensively for irrigation in the Deer Lodge Valley, the Little Blackfoot Valley, Nevada Valley, and along the Big Blackfoot River. Tributaries of the Clark Fork River drain all of the area except that portion of Powell County lying within the Flathead National Forest where the entire waters of the South Fork of the Flathead, south of Big Salmon, and White Rivers flow into Hungry Horse Reservoir, thence into Flathead River and Flathead Lake.

Topography of the national forest areas is generally steep and rugged with elevations varying from 4,200 to 9,600 feet. The higher portions of the forest area contain high glacial basins with many small lakes, many of which now have small dams with reservoirs for irrigating private lands outside the national forest area. In one area the moun-

tains rise abruptly from the Kleinschmidt Flat at Ovando and Woodworth. These flats are immediately south of the forest boundary and consist of a rather extensive area of relatively flat grass and marsh land, much of which is used for grazing and ranching operations.

Annual precipitation in this portion of Powell County varies from 10½ inches at Ovando to 29 inches at high elevation basins in the Flint Creek range. Runoff is usually heaviest during the last part of May and continues with a high flow throughout June. Infiltration and delayed water storage in the soil is dependent upon the management of vegetation and the use of the forest resources. Several stream gaging stations were established in 1958 to measure the volume and period of runoff.

Extensive stands of timber are found on national forest lands of Powell County. There are stands of virgin timber on the Lincoln and Seeley Lake districts. Considerable logging has been done in the past in the foothill country above Monture, Ovando and Woodworth. Most of this logging activity has been conducted on private lands. The most accessible commercial stands of timber were cut first for early construction of railroads, mining operations and settlements, and subsequently by small mills operating in the Drummond and Deer Lodge vicinities. Logging has not been done in the remaining virgin stands of timber due to the lack of roads, the pattern of mining claims, mostly unpatented, and the checkerboard ownership of alternate sections owned by private individuals or companies. As soon as logging roads are developed into the national forest areas, the harvest within Powell County will be considerably increased throughout the commercial timber areas.

Grazing is an important use of the national forest land in the southern portion of Powell County. A substantial part of the land in this area is made up of grassy stream bottoms and open or partially open mountain slopes and ridgetops. Grazing permits are issued to local ranchers to graze cattle and sheep on the forest during the summer months. Most of the ranchers holding grazing permits have used the national forest areas since the time of their establishment in 1906. At the present time 2,757 head of cattle and 8,400 head of sheep are permitted for summer grazing in the Powell County area of the national forests. A considerable portion of the area is heavily timbered and does not support sufficient grass to be economically used for either sheep or cattle range.

Recreation is one of the major uses of national forest lands in the county. This recreation use has markedly increased since the end of World War II and is expected to grow rapidly in the future as population increases and the people have more leisure time in which to enjoy the great outdoors. It is estimated that there were 151,000 visits to national forest lands in the county in 1957. Camping and picnicking facilities are provided at several improved campgrounds. The Forest Service is starting a five-year construction and reconstruction program for campgrounds called Operation Outdoors. Under this program campground facilities will be doubled during the coming five-year period.

A portion of the Bob Marshall Wilderness Area is located in the northern part of Powell County. No roads or other improvements, except those necessary for the protection and maintenance of this area, had been built prior to inclusion of the area in the

wilderness system and none have been allowed since that time. Only those improvements such as Government landing fields, ranger headquarters, work centers and lookouts needed for the administration and protection of the area have been constructed. The Bob Marshall Wilderness Area is a country for extensive pack trips and contains many beautiful spots with abundant horse feed. There are many streams and lakes offering excellent fishing and game animals of all kinds are abundant.

White-tailed deer, mule deer, elk, moose, mountain goats and sheep, black and grizzly bear are common on the national forest lands within the county. Because wildlife populations have increased beyond the ability of the range to support them, the Montana Fish and Game Department has authorized liberal seasons on big game animals in the last few years.

The condition of the watersheds in Powell County, in places at least, can be considered as only fair. There are areas where old mining operations, as well as recent work, have disrupted stream courses which will be costly to repair. There are also areas where both domestic stock and big game animals have caused accelerated runoff and soil loss by overgrazing. Some of these scars caused by overgrazing no doubt were started many years ago, perhaps when large horse herds were wintered on the steep slopes. More recently grazing has prevented recovery trends in some of these areas. Action is now being initiated to re-establish adequate vegetation and litter cover on damaged areas and to rehabilitate damaged drainage courses by specific erosion control projects. Public understanding of the potential permanent damage which can be caused by overstocking of big game animals is extremely important in preventing more permanent damage to the watersheds. Proper construction and maintenance of the several dams and reservoirs installed in the high drainage basins of this unit and proper construction and maintenance of access roads to these reservoirs demands constant vigilance to prevent damaging practices and severe erosion. Severe damage can be caused to any watershed as a result of forest fires, tree insects and disease, improper timber cutting, poor or inadequately supervised logging operations, steep grades on roads with poor drainage and poor construction and maintenance standards, and overgrazing or trampling by domestic livestock or big game. Any of these hazards can result in excessive runoff, decreased infiltration, loss of water storage, soil erosion, sedimentation, and stream-side damage.

In protecting the lands from fire, a combination of fire lookouts, local residents and aerial patrols has been found to be very effective. Fires that are accessible by road or trail are fought by Forest Service employees, ranchers, loggers, and local residents. Fires in the more inaccessible locations are extinguished by smoke jumpers. In this area approximately 80 per cent of the fires are caused by lightning and 20 per cent are man-caused. Unfortunately the man-caused fires are usually the largest and most costly to extinguish.

If and when the Ninemile Prairie and McNamara dams are constructed, proper management of the national forest resources will become increasingly important. These projects are planned for power production and for water storage as part of the comprehensive development of the Columbia River and its tributaries.

SUMMARY OF IRRIGATED LAND BY RIVER BASINS IN THE FOLLOWING COUNTIES COMPLETED TO DATE

Big Horn, Broadwater, Carbon, Custer, Deer Lodge, Gallatin, Golden Valley, Granite, Jefferson, Lewis & Clark, Madison, Meagher, Musselshell, Park, Powell, Ravalli, Rosebud, Silver Bow, Stillwater, Sweet Grass, Treasure, Wheatland and Yellowstone

RIVER BASIN	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Missouri River Drainage Basin			
*Missouri River	71,442.00....	16,476.00....	87,918.00
Jefferson River	61,291.00....	9,713.00....	71,004.00
Beaverhead River	40,771.00....	6,076.00....	46,847.00
Big Hole River	23,775.00....	1,950.00....	25,725.00
Madison River	39,445.00....	7,660.00....	47,105.00
Gallatin River	111,914.00....	21,097.00....	133,011.00
Smith River	30,304.00....	18,398.00....	48,702.00
Sun River	11,157.00....	2,313.00....	13,470.00
Musselshell River	64,789.00....	57,870.00....	122,659.00
Grand Total Missouri River Basin	454,888.00....	141,553.00....	596,441.00
Yellowstone River Drainage Basin			
Yellowstone River	299,053.00....	96,088.00....	395,141.00
Stillwater River	27,489.00....	16,403.00....	43,892.00
Clark Fork River	91,768.00....	24,195.00....	115,963.00
Big Horn River	65,395.00....	25,579.00....	90,974.00
Tongue River	22,137.00....	7,479.00....	29,616.00
Powder River	8,264.00....	1,804.00....	10,068.00
Grand Total Yellowstone River Basin	514,106.00....	171,548.00....	685,654.00
Columbia River Drainage Basin			
Clark Fork (Deer Lodge, Hellgate, Missoula) River	117,490.00....	10,828.00....	128,318.00
Bitterroot River	104,569.43....	2,799.00....	107,368.43
Grand Total Columbia River Basin	222,059.43....	13,627.00....	235,686.43
Grand Total in the Counties Completed to Date	1,191,053.43....	326,728.00....	1,517,781.43

*Names of streams indented on the left-hand margin indicate that they are tributaries of the first stream named above which is not indented.

IRRIGATION SUMMARY OF POWELL COUNTY BY RIVER BASINS

COLUMBIA RIVER BASIN	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
*Clark Fork Columbia (Deer Lodge, Hellgate) River	4,671.00	553.00	5,224.00
Race Track Creek	4,186.00	207.00	4,393.00
Granite Creek	27.00	0	27.00
Unnamed Spring	9.00	10.00	19.00
Unnamed Tributary to Race Track Creek	9.00	0	9.00
Unnamed Branch of Race Track Creek	20.00	0	20.00
Waste	58.00	0	58.00
Waste	46.00	0	46.00
Waste	42.00	0	42.00
Gravel Pit	3.00	0	3.00
Dempsey Creek	3,941.00	134.00	4,075.00
Waste	12.00	17.00	29.00
Quinlan Slough	43.00	0	43.00
Caribou Creek	1.00	0	1.00
Boomerang Creek	65.00	0	65.00
Powell Creek	121.00	0	121.00
Sloughs	117.00	0	117.00
Tin Cup Joe Creek	1,960.00	830.00	2,790.00
Morrison Gulch	0	435.00	435.00
Peterson Creek	1,308.00	0	1,308.00
Jack Creek	66.00	0	66.00
Jake Creek or Burnt Hollow	56.00	0	56.00
Sump	5.00	0	5.00
Taylor Creek	22.00	0	22.00
Waste	5.00	0	5.00
Cottonwood Creek	3,860.00	0	3,860.00
Baggs Creek or North Fork Cottonwood Creek	670.00	0	670.00
South Fork Cottonwood Creek	121.00	0	121.00
Reese Anderson Hollow	439.00	0	439.00
Waste	51.00	0	51.00
Spring Gulch	38.00	0	38.00
Fred Burr Creek	634.00	0	634.00
Waste	35.00	0	35.00
Freeze Out Creek	0	0	0
North Fork Freeze Out Creek	35.00	8.00	43.00

*Names of streams indented on the left-hand margin indicate that they are tributaries of the first stream named above which is not indented.

IRRIGATION SUMMARY OF POWELL COUNTY BY RIVER BASINS

COLUMBIA RIVER BASIN (continued)	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Jake Creek	109.00	0	109.00
O'Neill Creek	145.00	0	145.00
Little Blackfoot River	2,854.00	50.00	2,904.00
Unnamed Creek	19.00	0	19.00
Hat Creek	0	0	0
North Fork Hat Creek	55.00	0	55.00
South Fork Hat Creek	43.00	0	43.00
Slate or State Creek	19.00	0	19.00
Tributary to Little Blackfoot River	35.00	0	35.00
Telegraph Creek	52.00	0	52.00
Dog Creek or North Fork Little			
Blackfoot River	70.00	0	70.00
Dog Creek	0	0	0
Virginia Creek	30.00	0	30.00
Uncle George's Gulch	37.00	0	37.00
Unnamed Tributary to Uncle			
George's Gulch	185.00	0	185.00
Schatz Springs	100.00	0	100.00
King's Gulch Creek	15.00	0	15.00
Elliston Creek	2.00	0	2.00
West Fork Elliston Creek	30.00	0	30.00
Trout Creek or Salvelinus Creek	601.00	0	601.00
Mill, Milk or Hurd Creek	38.00	0	38.00
Snowshoe Creek or Gulch or			
Spring Gulch	721.00	100.00	821.00
Ophir Creek	1,081.00	0	1,081.00
Carpenter Creek	100.00	0	100.00
Trout Creek	85.00	0	85.00
Dog or Spotted Dog Creek	658.00	0	658.00
Three Mile Creek	2,565.00	0	2,565.00
Ohio Gulch	75.00	0	75.00
Six Mile Creek	746.00	0	746.00
Brush Hollow	65.00	0	65.00
Waste	243.00	0	243.00
Gimlet Creek	280.00	0	280.00
George's Gulch	31.00	0	31.00
Meade Creek	42.00	0	42.00
<hr/>			
Total Little Blackfoot River			
and Tributaries	10,877.00	150.00	11,027.00

IRRIGATION SUMMARY OF POWELL COUNTY BY RIVER BASINS

COLUMBIA RIVER BASIN (continued)	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Rock Creek	4,285.00	2,470.00	6,755.00
Willow Creek	223.00	64.00	287.00
Warm Springs Creek or Lower Warm Spring Creek	199.00	0	199.00
Waste	2.00	0	2.00
Brock Creek	53.00	0	53.00
Slough	34.00	0	34.00
Carten Creek	25.00	0	25.00
Gold Creek	1,441.00	0	1,441.00
Blum Creek	42.00	0	42.00
Pikes Peak Creek	18.00	0	18.00
Waste	22.00	0	22.00
Gough or Perriman's Creek	6.00	0	6.00
Dunkleberg Creek	230.00	0	230.00
Perkins Creek	20.00	0	20.00
Griff or Hoover Creek	237.00	0	237.00
Waste	11.00	0	11.00
(Big) Blackfoot River	2,628.00	301.00	2,929.00
Arrastra Creek	17.00	35.00	52.00
Unnamed Spring	33.00	0	33.00
Five Spring and Black Lake	18.00	0	18.00
Waste	19.00	0	19.00
Nevada Creek	4,558.00	461.00	5,019.00
Shingle Mill Creek	49.00	0	49.00
Mill or Mitchell Creek	413.00	30.00	443.00
Waste	33.00	0	33.00
The Rhine or Halfway Creek	0	33.00	33.00
McKay or Echols Creek	115.00	0	115.00
Strickland Creek	163.00	0	163.00
Davis or LaCombe Creek	287.00	0	287.00
Finn Creek	5.00	0	5.00
Washington Gulch	777.00	0	777.00
Jefferson Gulch	287.00	0	287.00
Madison Gulch	171.00	0	171.00
Gallagher Creek	663.00	0	663.00
Unnamed Creek	4.00	0	4.00
No Name Creek	99.00	0	99.00
Buffalo Gulch	106.00	0	106.00
Indian Creek	14.00	0	14.00
Brazil Creek	10.00	0	10.00
Cooper Creek	7.00	0	7.00

IRRIGATION SUMMARY OF POWELL COUNTY BY RIVER BASINS

COLUMBIA RIVER BASIN (continued)	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Hall Creek	10.00	0	10.00
Chimney Creek	20.00	0	20.00
Laherty Slough	110.00	0	110.00
Lincoln Slough	240.00	0	240.00
Wilson or Shores Creek	155.00	0	155.00
Wasson Creek	195.00	0	195.00
Springs	195.00	0	195.00
Spring Creek	60.00	0	60.00
Douglas Creek	1,042.00	297.00	1,339.00
Parrott Creek	59.00	0	59.00
Brantly Creek	22.00	0	22.00
Murray Creek	365.00	42.00	407.00
Five Mile Creek	152.00	0	152.00
Chimney Creek	85.00	0	85.00
Mud Creek	10.00	0	10.00
Cottonwood Creek	955.00	0	955.00
McElwain Creek	169.00	0	169.00
Total Nevada Creek and Tributaries	11,605.00	863.00	12,468.00
Slough	0	36.00	36.00
Waste	48.00	0	48.00
Your Name Creek	1,319.00	0	1,319.00
Wales Creek	539.00	290.00	829.00
Frazer Creek	158.00	0	158.00
North Fork (Big) Blackfoot River	1,247.00	141.00	1,388.00
Dry or Rock Creek	0	0	0
Salmon or Cooper Creek	0	0	0
Cooper's Lake	192.00	0	192.00
One Spring Creek or			
Spring Creek	17.00	0	17.00
Sloan Creek	53.00	0	53.00
Spring Creek	20.00	0	20.00
Ward Creek	128.00	133.00	261.00
Warren Creek	876.00	0	876.00
Hoyt Creek	0	0	0
Spring Creek	195.00	0	195.00
Monture or Lightning Creek	0	101.00	101.00
West Fork Monture (Dunham)			
Creek	691.00	48.00	739.00
Pothole	32.00	0	32.00
McCabe Creek	347.00	0	347.00
Dick Creek	159.00	0	159.00

IRRIGATION SUMMARY OF POWELL COUNTY BY RIVER BASINS

COLUMBIA RIVER BASIN (continued)	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Rat or Hoyt Creek	444.00	0	444.00
Unnamed Spring	25.00	0	25.00
Unnamed Creek	0	5.00	5.00
Chamberlain Creek	109.00	16.00	125.00
Shanley Creek	882.00	86.00	968.00
West or North Fork Shanley Creek or Cottonwood Creek	453.00	122.00	575.00
Unnamed Creek	35.00	0	35.00
Unnamed Spring	46.00	0	46.00
Unnamed River	31.00	0	31.00
East Fork Shanley Creek	200.00	0	200.00
Lost Creek	41.00	0	41.00
Total (Big) Blackfoot River and Tributaries	22,607.00	2,177.00	24,784.00
Total Irrigation Columbia River Basin in Powell County	63,262.00	7,055.00	70,317.00

NEVADA CREEK PROJECT (Nevada Creek Water Users' Association)

HISTORY

This project was constructed by the State Water Conservation Board and consists of a dam, reservoir and a canal system for water distribution. The reservoir is located on Nevada Creek about 10 miles southeast of Helmville and has a capacity of water storage for the full irrigation of 1,000 acres and to provide a supplemental supply for 10,000 acres of land. The canal system includes two main canals known as the North Helmville Canal and the Douglas Creek Canal (also called the South Side Canal).

The State Water Conservation Board received an offer from the Federal government dated October 2, 1937, which was accepted by the Board on October 6, 1937. The estimated cost for the construction of the project was \$258,181 of which \$116,181 was to be a grant and \$142,500 a loan, to be evidenced by water conservation revenue bonds. One requirement of the loan and grant was the formation of the Nevada Creek Water Users' Association and the sale of 10,500 acre-feet of water under contracts with the members (see page 39 for water purchase contract) satisfactorily to the Finance Division of the PWA.

The Nevada Creek Water Users' Association was incorporated on October 13, 1937, with a capital stock of \$15,000, which was divided into 15,000 shares at a par value of \$1.00 per share. Bids for construction of the project were received twice. The first time on February 2, 1938, and the second time on March 4, 1938. When bids were open the second time (March 4, 1938) the low bidder was J. L. McLaughlin of Great Falls, Montana for a total sum of \$234,265.95. The work under this contract was commenced on April 1, 1938, and completed on December 7, 1938. Another offer from the Federal government was made on June 12, 1940, and accepted by the Board, wherein the government agreed to increase the grant mentioned in the original offer but not to exceed the sum of \$10,800 to do certain necessary drilling and grouting of the dam.

Due to construction work on the canal system not being completed, the project operated only in part during the 1939 season. Because of the drilling and grouting work, the reservoir was not allowed to fill to capacity in the spring of 1940, but the next 2 years of 1941-42 demonstrated that the reservoir could be filled in any normal year even though there may be no water carried over.

PRESENT STATISTICS

Location: The dam is located on the main channel of Nevada Creek in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of sec. 14, T. 12 N., R. 10 W. and the reservoir has a storage capacity of 12,640 acre-feet, covering a flooded area of 448 acres. The **North Helmville Canal** has its point of diversion in the NW $\frac{1}{4}$ of sec. 5, T. 12 N., R. 10 W. and follows a northwesterly direction and terminates in sec. 25, T. 14 N., R. 11 W. where it spills into the (Big) Black-foot River. Lands irrigated along the course of the canal are in sec. 2, T. 13 N., R. 11 W.; secs. 30, 31, and 32, T. 13 N., R. 10 W.; and secs. 35 and 36, T. 14 N., R. 11 W. **Douglas Creek Canal** (South Side Canal) has its point of diversion in the NE $\frac{1}{4}$ of sec. 9, T. 12 N., R. 10 W. and courses northwesterly to a point in the SW $\frac{1}{4}$ of sec. 33, T. 13 N., R. 11 W.

where it spills into Douglas Creek. Lands irrigated by this canal system are located in sec. 6, T. 12 N., R. 10 W.; secs. 25, 26, 36, 19, 20, 29, 30, and 32, T. 13 N., R. 11 W.

Length and Capacity of Canals: The **North Helmville Canal** is approximately 13 miles in length and has an initial capacity of 50 second-feet. The **Douglas Creek Canal** (also known as the South Side Canal) is 10.5 miles long and has a capacity of about 50 second-feet. This canal was an enlargement and extension of an old ditch system known as the "Hoefner Ditch."

Present Users: During the year 1958, there were 14 water users signed up for 3,760 shares in the water users' association.

Acreage Irrigated: The acreage irrigated under this project in 1958, totals 2,010 acres with 461 acres potentially irrigable.

WATER RIGHT DATA

The water right applicable to the Nevada Creek Water Users' Association is as follows: From Nevada Creek and tributaries, an appropriation by the State Water Conservation Board for all the unappropriated waters dated September 1, 1937. (Ref. Book 2, Page 279, Water Right Records, Clerk and Recorder's Office, Powell County, Deer Lodge, Montana). (See Maps in Part II, Pages 24, 25, 27, 28, and 31).

WEST SIDE DITCH COMPANY

HISTORY

This ditch company was first incorporated on November 12, 1887, and operated for a period of 20 years under the name of the West Deer Lodge Water Company. The first water users were Ed. H. Irvine, James McMaster, Wm. Williams, W. N. Aylesworth, J. H. Meyers, D. H. McFarland, J. E. Van Gundy, and James R. Preston. On May 16, 1917, the West Deer Lodge Water Company reincorporated for a period of 40 years and changed the name of the corporation to the West Side Ditch Company. A certificate was filed on January 31, 1919, making the capital stock of the corporation assessable. An extension of the term of existence was made on June 8, 1957, for a period of 20 years. The amount of the capital stock issued by the company was 700 shares of a par value of Forty (\$40) Dollars each.

PRESENT STATISTICS

Location: The point of diversion of the West Side Ditch is in the NE¼ of sec. 20, T. 6 N., R. 9 W. Following a generally northerly direction, the ditch furnishes water for the irrigation of land in sec. 32, T. 8 N., R. 9 W.; secs. 5, 8, 17, 20, 29, and 32, T. 7 N., R. 9 W.

Length and Capacity of Canal: The initial capacity of the ditch is about 50 cfs and it has a total length of 12½ miles.

Operation and Maintenance: Operation and maintenance charges of this ditch system have averaged yearly \$3.00 per share of stock owned in the company. Each share of stock represents 2½ miner's inches of water.

Present Users: The total of 700 shares in the company are active and owned by 7 water users under the ditch system.

Acreage Irrigated: In 1958, this ditch system had 1,125 acres irrigated and 29 acres potentially irrigable.

WATER RIGHT DATA

The water rights that apply to the West Side Ditch Company are as follows: Appropriated by the West Side Ditch Company from the Deer Lodge River, 1,600 miner's inches with the priority date June 28, 1889, and 1,000 miner's inches dated December 7, 1949 (Ref. Book 5, Page 378, Water Right Records, Clerk & Recorder's Office, Powell County, Deer Lodge, Montana); decreed to the West Side Ditch Company from Lost Creek, 905.06 miner's inches dated September 13, 1900 (Ref. Case #1982, Clerk of the Court's Office, Deer Lodge County Courthouse, Anaconda, Montana); decreed to the West Side Ditch Company from Dry Modesty Creek (Quinlan Slough), 200 miner's inches dated November 4, 1900 (Ref. Case #2288, Clerk of the Court's Office, Powell County Courthouse, Deer Lodge, Montana). (See Maps in Part II, Pages 5 and 9).

WATER MARKETING CONTRACT

This is an agreement between a Water Users' Association and the State Water Conservation Board on any project built or operated by the Board: whereby the Board agrees to sell to the Association all of the available water of the project, and the Association agrees to maintain the project and distribute the water to water purchasers and provides the method of payments for sums due, levying of assessments for operation and maintenance cost, notification of such levy to be given water purchasers, time of default and remedies in the event of default.

WATER PURCHASE CONTRACT

This is a three party contract entered into between the individual water purchaser, the Association and the State Water Conservation Board on any project built or operated by the Board: whereby the individual agrees to purchase a stated amount of water and to pay therefore annually a sum of money for a definite term of years; in addition to such annual sum, the individual agrees to pay such additional sum or sums as may be required annually as his proportionate share of the cost of operation and maintenance of the project. This contract is not valid until the water purchaser executes a Subscription and Pledge Agreement.

SUBSCRIPTION AND PLEDGE AGREEMENT

This is a contract between the individual water purchaser and the Water Users' Association. The purchaser agrees to buy shares of stock in the Association equal to the number of acre-feet or miner's inches of water he wishes to obtain. The water purchaser has the right to vote his shares of stock at all meetings. The stock of an Association cannot be held by anyone not having a Water Purchase Contract.

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
COLUMBIA RIVER BASIN							
*Clark Fork Columbia (Deer							
Lodge, Hellgate) River	24	30,530	763.25	452 ^s	2	0	0
Lost Creek ¹	4	4,200	105.00	1982	1	905.06	22.63
Slough and Swamp	0	0	0				
Dry Modesty Creek ¹	1	400	10.00	2288	1	200.00	5.00
Springs ¹	1	500	12.50				
Drainage ¹	1	150	3.75				
Swamp ¹	1	300	7.50				
Drainage and Seepage ¹	1	200	5.00				
Spring	1	All	0				
Seepage ¹	1	200	5.00				
Race Track Creek	46	140,375	3,509.37	2749 ^o	21	3,393.50	84.84
Race Track Lake	0	0	0	1721	6	20,422.00	510.55
North Fork Race Track Creek ^a	4	10,000	250.00	1721	(See Race Track Creek)		
Albicaulis and Alpine Lakes	0	0	0	2473	1	200.00	5.00
Pozega Lake No. 1	0	0	0	1721	(See Race Track Creek)		
Pozega Lake No. 2	0	0	0	1721	(See Race Track Creek)		
Bowman Lakes	0	0	0	1984	1	250.00	6.25
Power Creek	1	3,000	75.00				
Thornton Creek	4	2,160	54.00				
Thornton Lake	0	0	0	1721	(See Race Track Creek)		
Jones or Mountain Ben Lake	0	0	0	1721	(See Race Track Creek)		
Hunter Creek	1	200	5.00				
Granite Creek	3	500	12.50				
Spring	2	105	2.63				
Seepage Water	2	All	0				
Spring	1	200	5.00				
Tributary to Race Track Creek	1	100	2.50				
Spring	2	100	2.50				
Slough, Drainage and Seepage	2	400	10.00				
Oro Fino Creek (Gulch)	5	970	24.25	618	3	500.00	12.50
Moody Gulch	1	50	1.25				
Swamps	1	50	1.25				
Spring	2	240	6.00				
Caribou Creek	4	1,050	26.25	2211	4	230.00	5.75
Boomerang Creek or Gulch	3	250	6.25	2211	(See Caribou Creek)		
Swamp Creek	1	1,000	25.00				
Springs	1	500	12.50				
Meadow Creek	1	All	0				
Dempsey Creek	14	43,325	1,083.12	1671	15	2,739.00	68.47
South Fork Dempsey Creek	2	250	6.25	1291	1	200.00	5.00
Lakes on Dempsey Creek	0	0	0	1182	3	All	0
Mountain Ben Lake	2	1,300	32.50	1182	(See Lakes on Dempsey Creek)		
Goat or Great Lake	1	300	7.50	1182	(See Lakes on Dempsey Creek)		
Caruthers Lake	1	10,000	250.00				
Dempsey Lakes, Upper and Lower Elliot Lakes, Summit Lake No. 1 and No. 2 or Mt. Powell Lake and Mt. Powell Lake No. 2	6	10,450	261.25	1182	(See Lakes on Dempsey Creek)		

*Names of streams indented on the left-hand margin indicate that they are tributaries of the first stream named above which is not indented.

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Ryan Creek	1	150	3.75				
Blind or Ryan Lake	0	0	0	310	1	All	All
Bohn or Montgomery Lake	0	0	0	1182	(See Lakes on Dempsey Creek)		
Dead Lake	2	400	10.00	1182	(See Lakes on Dempsey Creek)		
North Fork Dempsey Creek	2	400	10.00	1291	1	200.00	5.00
Spring	1	12	.30				
Spring	1	40	1.00				
Alex, Alec's, Baboon, Baloon, or Gooseberry Gulch	2	400	10.00	702	2	All	All
Three Springs	1	20	.50				
Drain Ditch	1	300	7.50				
Seepage Water	1	All	0				
Quinlan Slough	2	175	4.37				
Waste of Dempsey Creek	1	200	5.00				
Seepage Water	2	320	8.00				
Soda Creek	1	200	5.00				
Drainage	2	600	15.00				
J. T. Little Spring	1	120	3.00				
Seepage	1	75	1.88				
Powell Creek	12	2,675	66.88	337	3	100.00	2.50
Powell Lake	5	11,400	285.00				
Spring	2	90	2.25				
Spring Gulch	3	330	8.25				
Spring	3	100	2.50				
Peterson Creek	21	4,285	107.12	215	11	1,420.00	35.50
				1994	11	1,530.00	38.25
North Fork Peterson Creek	1	All	All				
South Fork Peterson Creek	1	160	4.00				
Spring Creek	3	600	15.00				
Jack Creek	2	500	12.50				
Springs	2	100	2.50				
Spring Gulch	1	75	1.88				
Burnt Hollow or Jake Creek	4	460	11.50				
Spring	2	660	16.50				
Spring	1	100	2.50				
Thunderbolt Creek	1	350	8.75				
Spring	2	90	2.25				
Lucas Gulch	1	200	5.00				
Tincup, Tincup Joe, or Irvin Creek	17	7,800	195.00	93	12	2,235.00	55.87
Irvine Lake	2	All	All				
Lake	1	5,000	125.00				
North Fork Tincup Joe Creek	2	200	5.00				
Morrison Gulch	2	200	5.00				
Surface Water	1	All	All				
Taylor Creek	1	200	5.00				
Spring	1	30	.75				
Waste Waters	1	40	1.00				
Unnamed Stream	1	50	1.25				
Cottonwood Creek	20	6,985	174.62	40	22	2,504.00	62.60
Middle or South Fork Cottonwood Creek	17	9,453	236.32				
Sugar Loaf Creek	1	All	All				
Springs	1	80	2.00				
East Fork Sugar Loaf Creek	1	All	All				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Spring	1	500	12.50				
Sterrett Gulch	2	280	7.00				
North or East Fork Cottonwood							
Creek or Baggs Creek	10	2,810	70.25	40	(See Cottonwood Creek)		
Spring	1	100	2.50				
Spring Gulch	1	200	5.00				
Tributary to Baggs Creek	1	200	5.00				
Sheephorn Gulch	1	All	All				
Reese Anderson Hollow	5	255	6.37	370	2	95.00	2.37
Spring	1	100	2.50				
Unnamed Stream	1	100	2.50				
Reason Creek	1	40	1.00				
Spring Creek	2	525	13.12				
Underground Flow	1	200	5.00				
Springs	4	1,238	30.95				
Tributary to Cottonwood Creek	1	100	2.50				
Marsh Creek	0	0	0				
Spring	1	200	5.00				
Beck and Lamash Creek or							
Lemarche Creek	4	1,200	30.00				
Fred Burr Creek	2	500	12.50				
Olson Slough	2	600	15.00				
Waste and Seepage	1	80	2.00				
Spring	1	500	12.50				
Freeze Out Creek	1	All	All				
North Fork Freeze Out Creek	2	1,300	32.50				
Jake Creek	1	100	2.50				
Waste Water	1	200	5.00				
Helena Gulch	1	500	12.50				
Spring	1	All	All				
Mullen or Mullan Creek	1	100	2.50	138	2	50.00	1.25
O'Neil Creek	2	600	15.00	876	1	500.00	12.50
Spring	1	100	2.50				
Kohrs and Manning Ditch	2	0	0				
French Gulch	0	0	0				
Ballard Hill Spring	1	5.5	.14				
Little Blackfoot River	93	91,900	2,297.50				
Ontario Creek	8	3,865	96.63				
North Fork Ontario Creek	1	40	1.00				
Bison Creek	1	300	7.50				
Monarch Creek	2	1,000	25.00				
Hat Creek	7	3,440	86.00				
North Fork Hat Creek	2	1,600	40.00				
South Fork Hat Creek	1	240	6.00				
Rock Creek Gulch	1	All	All				
Tributary to Little Black-							
foot River	3	330	8.25				
State Creek	3	820	20.50				
Telegraph Creek	8	10,760	269.00				
Bryan or Bryant Creek	5	500	12.50				
Sally or Sally Ann Creek	5	1,260	31.50				
East Fork Sally Creek	6	40	1.00				
Tributary to Bryant Creek	2	90	2.25				
Mary Ann Creek	1	8,000	200.00				
New York Creek	1	100	2.50				
Southeast Fork Mary							
Ann Creek	1	4,000	100.00				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Moose Creek	8	104,165	2,604.13				
Flume Creek	1	80	2.00				
Carbonate Creek	1	All	All				
Cicelia Water Spring	1	All	All				
Mike Reinig Creek	10	14,575	364.38				
East Fork Mike Reinig Creek	4	480	12.00				
Dog Creek	22	5,090	127.25				
Spring	1	12	.30				
Virginia Creek	1	100	2.50				
Spring	1	All	All				
Uncle George's Gulch	5	950	23.75	1064	2	4.00	.10
Embody Creek	2	700	17.50				
Springs	3	290	7.25				
Davis Creek	1	50	1.25				
Dry Creek	1	40	1.00				
Kennie Creek	1	100	2.50				
Sheep Camp Creek	0	0	0				
Springs	1	All	All				
Kings Gulch	1	120	3.00				
Springs	1	320	8.00				
Iron Mine Creek	1	75	1.88				
Iron Mine Gulch Spring	3	140	3.50				
McDonald, Spring, or							
Willow Creek	7	4,120	103.00				
Spring	1	20	.50				
Meadow Creek	3	3,200	80.00				
Columbia Creek	3	1,400	35.00				
Spring	2	18	.45				
Elliston, Clear, or Willow Creek	7	955	23.87				
Springs	1	200	5.00				
Trout Creek	13	1,885	47.13	1368	1	300.00	7.50
Clear Spring	1	100	2.50				
Clarks Canyon Creek	2	200	5.00				
Spring	1	200	5.00				
Logan Gulch	0	0	0				
Springs	2	50	1.25				
Gold Canyon Creek	3	700	17.50				
Springs	3	225	5.62				
Trout Spring	1	100	2.50				
Mill, Milk, or Hurd Creek	2	400	10.00				
Deep Creek	1	300	7.50				
Snowshoe or Spring Creek	32	8,435	210.87				
Spring	1	60	1.50				
Main Spring	2	50	1.25				
Clear Creek	1	300	7.50				
Springs	3	125	3.12				
Spring Creek	1	150	3.75				
Pondaray Creek	1	All	All				
Boulder Spring	1	25	.63				
Milk Ranch Creek	0	0	0				
Springs	1	10	.25				
Fist Gulch	1	100	2.50				
Milk Ranch Spring	1	50	1.25				
Unnamed Creek	1	All	All				
Springs	1	All	All				
Two Lakes	1	0	0				
Ophir Creek	32	7,000	175.00	1185	14	1,600.00	40.00
				2038	1	800.00	20.00

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Ranger Gulch	2	All	0				
Two Springs	1	75	1.88				
Spring Creek	4	675	16.88				
Illinois Gulch	3	100	2.50				
Carpenter Creek or Gulch	14	2,930	73.25				
Basin Creek	6	750	18.75				
Mechanics Gulch	1	0	0				
Warm Springs Creek	2	All	All				
Spring	1	200	5.00				
Mexican Gulch	1	600	15.00				
Tiger Gulch	5	155	3.88				
Trout Creek	8	1,250	31.25				
North Fork Trout Creek	1	120	3.00				
Spring	1	40	1.00				
East Fork Trout Creek	1	200	5.00				
Beckstead Springs	1	0	0				
Spring Creek	1	10	.25				
Springs	3	40	1.00				
Dog Creek	8	2,550	63.75				
Springs	2	325	8.13				
Spring Gulch	1	15	.37				
Three Mile Creek	20	5,599	139.97	377	11	3,562.00	89.05
Georgia Creek	6	1,475	36.87	377	(See Three Mile Creek)		
Tributary of Georgia Creek	1	All					
Ballarat Creek	4	600	15.00	377	(See Three Mile Creek)		
Spring Creek	1	50	1.25				
Ohio Gulch	2	400	10.00	377	(See Three Mile Creek)		
Halls Gulch	0	0	0	377	(See Three Mile Creek)		
Six Mile Creek	8	1,800	45.00	1173	5	770.00	19.25
Spring Creek	2	All	All				
Lake	1	100	2.50				
Gravelly Mine Waste Water	2	500	12.50				
Brush Hollow	4	500	12.50	1173	(See Six Mile Creek)		
Deep Creek	1	80	2.00				
Spring	1	All	0				
Gimlet Creek	5	800	20.00				
Kinsey Creek	1	150	3.75				
Farleys Spring	1	15	.38				
Deep Creek	2	310	7.75				
Spring Gulch	1	100	2.50				
Ditch Gulch	1	100	2.50				
Georges Gulch	2	2,000	50.00				
Meade Creek	1	120	3.00				
Tributary of Meade Creek	3	400	10.00				
Hansen Creek	1	100	2.50				
Smith Slough	1	All	All				
Tributary to Little Black-foot River	1	100	2.50				
Black Horse Gulch	1	All	All				
Rock Creek	30	31,395	784.87	1188	8	6,250.00	156.25
Branch Rock Creek	1	350	8.75				
East Fork Rock Creek	1	500	12.50				
Rock Creek Lake	2	6,000	150.00				
Bogalls Gulch	1	All	All				
Dolas Lake	3	3,300	82.50				
South Branch Rock Creek	2	600	15.00				
Tributaries of Rock Creek	1	10,000	250.00				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Springs	1	1,000	25.00				
Lime Kiln Creek	1	250	6.25				
Dry Gulch	2	All	All				
Willow Creek	15	4,900	122.50	1668	5	340.00	8.50
Doney Lake	1	1,000	25.00				
West Fork Willow Creek or Cottonwood Creek	2	440	11.00				
East Fork Willow Creek	2	275	6.87				
Lake	2	All	All				
Springs	1	100	2.50				
Warm Springs Creek	9	3,300	82.50				
Spring	2	All	All				
Tributary to Warm Springs Creek	1	600	15.00				
Sheep Creek	2	500	12.50				
Spring Creek	3	80	2.00				
Brock Creek	3	885	22.13				
Unknown Lake	1	200	5.00				
Tributary to Brock Creek	1	200	5.00				
Big and Little Gold Creek Lake	0	0	0	517	19	8,320.00	208.00
Gold Creek	38	13,320	333.00	1249	1	1,000.00	25.00
				2253	2	600.00	15.00
				2864	1	All	All
						Surplus	Surplus
Big Gold Creek Lake ²	1	2,400	60.00				
Fourth of July Springs ²	2	240	6.00				
Crevice Creek	1	200	5.00				
Blum or Bloom Creek	6	780	19.50				
South Fork Blum Creek	1	200	5.00				
Pikes Peak Creek	25	10,490	262.25	2253	(See Gold Creek)		
East Fork Pikes Peak Creek	1	100	2.50				
Middle Fork Pikes Peak Creek	1	120	3.00				
Crater Creek	3	3,100	77.50				
Crater Lake	1	40	1.00				
Spring Creek	1	120	3.00				
Left Fork Pikes Peak Creek	1	150	3.75				
Emory Ridge Springs	1	11	.28				
Silver King Lake and Creek	2	1,240	31.00				
Divide Creek	1	All	All				
Royal Ann Spring	1	All	All				
Pioneer Gulch	4	2,000	50.00				
Pioneer Spring	1	All	All				
Spring Creek	1	All	All				
Right Fork Pioneer Creek	1	100	2.50				
Spring	1	100	2.50				
French Gulch	0	0	0				
French Gulch Spring	1	11	.28				
Squaw Gulch	3	520	13.00				
Overflow Spring	1	40	1.00				
Spring	1	160	4.00				
Griffin Creek	4	225	5.63				
Springs	1	50	1.25				
Carten or Carter Creek	10	1,425	35.62				
Deadmans Gulch	0	0	0				
Springs	2	40	1.00				
Keenan Creek	1	200	5.00				
Gough or Perriman Creek	2	4,000	100.00	980	1	250.00	6.25

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Spring Creek	1	160	4.00				
Tributary to Perriman Creek	1	All	All				
Spring	3	320	8.00				
Waste Waters Mannix and Wilson Gulch	1	200	5.00				
Dunkleberg Creek	3	1,800	45.00	2104	1	All	All
Perkins Creek	1	25	.62	1611	1	50.00	1.25
Griff, Hoover or Griffiths Creek	6	820	20.50	151	3	233.00	5.82
Elk Swamp Creek	1	50	1.25				
Brad's Creek	1	12	.30				
Springs	1	300	7.50				
Spring Gulch Creek	1	100	2.50				
Spring	1	100	2.50				
Unnamed Creek	1	80	2.00				
Flathead River	0	0	0				
South Fork Flathead River	0	0	0				
White River	0	0	0				
South Fork Spring	1	160	4.00				
(Big) Blackfoot and East Fork, and South Fork (Big) Black- foot River	25	45,620	1,140.50				
Lost Creek	1	25	.62				
Little and Big Moose Creek	2	600	15.00				
West Branch Moose Creek	1	400	10.00				
Arrastra Creek	16	13,020	325.50				
Spring	2	250	6.25				
Marcum Hill Springs	2	45	1.13				
McGee Spring	3	65	1.62				
Spring Creek	1	500	12.50				
Five Springs and Black Lake	1	600	15.00				
Ogden Gulch	1	120	3.00				
Trapper Hill Spring	3	90	2.25				
Waste Water	1	500	12.50				
Spring and Slough	2	700	17.50				
Seepage	1	200	5.00				
Brown Slough	2	700	17.50				
Nevada Creek	45	75,245	1,881.12	143	56	11,113.00	277.82
Gleason Creek	1	1,000	25.00				
Gooseberry Creek	1	15	.38				
Sawmill or Shingle Creek	3	850	21.25	143		(See Nevada Creek)	
American Gulch	11	1,550	38.75				
Spring Gulch	1	25	.63				
Mill or Mitchell Creek	13	3,510	87.75	143		(See Nevada Creek)	
South Fork Mill Creek	1	50	1.25				
Spring Creek	1	200	5.00				
The Rhine or Halfway Creek	6	1,550	38.75	143		(See Nevada Creek)	
Camp Creek	1	50	1.25				
Spring Creek	1	120	3.00				
Echols Gulch or McKay Creek	6	750	18.75	1173		(See Six Mile Creek)	
				143		(See Nevada Creek)	
Price Spring	1	20	.50				
Spring	4	90	2.25				
Strickland Creek	5	850	21.25	143		(See Nevada Creek)	
West Fork Strickland Creek	2	250	6.25				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Davis, Clover, LaCombe or Flaherty Creek	6	1,850	46.25	143	(See Nevada Creek)		
Spring	1	50	1.25				
Finn Gulch	2	450	11.25	143	(See Nevada Creek)		
East Fork Finn Gulch	1	240	6.00				
Spring	1	50	1.25				
Washington Gulch	21	6,800	170.00	143	(See Nevada Creek)		
Tunnel Gulch	1	50	1.25				
Ditch	1	75	1.87				
Jefferson Creek	21	8,060	201.50	143	(See Nevada Creek)		
McCatter or Bob Creek	3	570	14.25	143	(See Nevada Creek)		
Madison Gulch	5	680	17.00	143	(See Nevada Creek)		
McCleary Gulch	1	100	2.50				
Spring	3	15	.38				
Gallagher Creek	5	1,350	33.75	143	(See Nevada Creek)		
Spring Creek	2	280	7.00	143	(See Nevada Creek)		
No Name Creek	5	820	20.50	143	(See Nevada Creek)		
Buffalo Creek or Gulch	8	4,350	108.75	143	(See Nevada Creek)		
Meade Creek	0	0	0				
California Creek or Gulch	5	550	13.75	143	(See Nevada Creek)		
Spring Creek	1	200	5.00				
Lake	1	All	All				
Tributary to Buffalo Creek	1	400	10.00				
Clear Creek	3	600	15.00	143	(See Nevada Creek)		
Indian Creek	3	1,500	37.50	143	(See Nevada Creek)		
Springs	3	125	3.12				
Chicken or Chicken Run Creek	7	6,440	161.00	143	(See Nevada Creek)		
Brazil Creek	1	480	12.00	143	(See Nevada Creek)		
Deer Creek	4	640	16.00	143	(See Nevada Creek)		
Cooper Creek	1	80	2.00	143	(See Nevada Creek)		
Hall Creek	2	250	6.25	143	(See Nevada Creek)		
Chimney Creek	3	1,000	25.00	143	(See Nevada Creek)		
Castlemans, Castle, or Cussleman Creek	4	500	12.50	143	(See Nevada Creek)		
Bressell Lake	1	3,500	87.50				
Sanford Slough	1	400	10.00				
Reinig Gulch or Creek	2	500	12.50	143	(See Nevada Creek)		
Two Springs	1	All	All				
Unnamed Creek	2	All	All				
Laherty Slough	0	0	0	143	(See Nevada Creek)		
Lincoln Slough	1	600	15.00	143	(See Nevada Creek)		
				1662	(See Wilson or Shores Creek)		
Wilson or Shores Creek	11	2,045	51.12	1662	6	1,245.00	31.12
				143	(See Nevada Creek)		
Kleinschmidt and Hard Spring	1	120	3.00				
Dry or Moores Gulch	2	600	15.00				
Waste Water	1	200	5.00				
Spring	1	200	5.00				
Wasson or Woosen Creek	10	2,300	57.50	143	(See Nevada Creek)		
				1662	(See Wilson or Shores Creek)		
Delameter Creek	1	25	.63				
Middle Hill Creek	1	140	3.50				
Puzzle Creek	2	All	All				
Lincoln Spring	1	50	1.25				
Spring Creek	4	1,280	32.00				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Tim Lynch Spring	1	10	25				
Springs	2	1,025	25.62				
Douglas Creek	15	5,040	126.00	1539	6	3,803.00	95.07
Weasel Creek	8	1,775	44.38				
Springs	1	All	All				
Right Fork Weasel Creek	1	300	7.50				
Left Fork Weasel Creek	2	700	17.50				
Sturgeon Creek	1	40	1.00	1539	(See Douglas Creek)		
Parrott Creek	1	250	6.25	1539	(See Douglas Creek)		
Spring	1	4	10				
Bear Creek or Gulch	3	330	8.25				
Brantly or Sheep Creek	1	300	7.50	1539	(See Douglas Creek)		
Murray Creek	5	1,920	48.00	1539	(See Douglas Creek)		
Five Mile Creek	1	400	10.00	1539	(See Douglas Creek)		
Pauls Spring	1	120	3.00				
Chimney Creek	4	2,080	52.00	1539	(See Douglas Creek)		
Mud Creek	3	350	8.75	1539	(See Douglas Creek)		
Grove Spring	1	10	25				
Cottonwood Creek	12	3,635	90.88	405	7	2,300.00	57.50
Pole Creek	1	200	5.00	405	(See Cottonwood Creek)		
Laherty Creek	2	900	22.50	405	(See Cottonwood Creek)		
Spring Creek	1	100	2.50				
Slough	1	300	7.50				
McElwain Creek	2	400	10.00	492	2	895.00	22.37
Tributaries of Nevada Creek	3	All	All				
Waste Water	1	1,000	25.00				
Lake on Section Thirteen	1	100	2.50				
Your Name Creek	16	5,900	147.50	494	3	1,530.00	38.25
North Fork Your Name Creek	2	5,000	125.00				
Deer Gulch	1	300	7.50				
Spring Creek	1	40	1.00				
Wales Creek	5	4,750	118.75				
Park Creek	3	1,450	36.25				
Beaver Dam Creek	3	530	13.25				
Spring Brook	1	300	7.50				
Lakes and Reservoir	3	200	5.00				
Fraser Creek	5	1,940	48.50				
Dunnegan Creek	1	320	8.00				
North Fork (Big) Blackfoot							
River or Salmon Trout Creek	19	94,050	2,351.25	2259	13	7,540.00	188.50
Spring Creek	2	800	20.00	2259	(See North Fork [Big] Blackfoot River)		
Spring	1	0	0				
Dry or Rock Creek	9	8,400	210.00				
One Spring Creek	1	160	4.00				
Nelson Springs	1	100	2.50				
Cooper Creek	2	800	20.00				
Coopers or							
Kleinschmidt Lake	3	21,000	525.00				
Spring	1	10	25				
Unnamed Stream	1	640	16.00				
Big Spring	1	100	2.50				
Lake	1	600	15.00				
Spring	1	200	5.00				
Bear Creek	4	1,550	38.75				
Dry Creek	5	1,960	49.00				
Sloan Creek	1	500	12.50				

WATER RIGHT DATA — POWELL COUNTY

APPROPRIATIONS AND DECREES BY STREAMS

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
Spring, Salmon or Spring Creek	5	4,500	112.50				
Ward, Meadow, Rose or Sucker Creek	18	11,250	281.25	2133	4	370.00	9.25
Brown's Lake	5	1,895	47.37				
Callahan Creek	1	150	3.75				
Spring Creek	2	300	7.50				
Jacobsen Spring	0	0	0	2259	(See North Fork [Big] Blackfoot River)		
Spring	1	All	All				
Dry Gulch Creek	0	0	0				
North Fork Lake	1	400	10.00				
Spring	1	100	2.50				
Pond	1	50	1.25				
Dunnegan Spring	2	110	2.75				
Spring	1	180	4.50				
Youngs Lake	1	80	2.00				
Warren Creek or Swamp	15	3,960	99.00	488	9	1,992.00	49.80
Smith Creek	1	320	8.00				
Waste	1	All	All				
Monture or Lightening Creek	3	1,500	37.50				
Monture Campground Spring	1	800	20.00				
Dunham, West Fork Monture, or West Fork							
Lightening Creek	5	4,760	119.00	1114	2	3,300.00	82.50
Spring	2	20,600	515.00				
Shoup Lake	1	10	.25				
Dick or Dugout Creek	9	3,860	96.50				
Spring Creek	2	1,000	25.00				
Spring	1	500	12.50				
McCabe Creek	4	1,560	39.00	999	4	485.00	12.13
Springs	1	40	1.00				
Coughlin, Hoyt or Rat Creek	5	2,300	57.50				
Springs	1	220	5.50				
Swamp	3	500	12.50				
Sundry Springs	1	500	12.50				
Covey's Lake	2	160	4.00				
Pierson or Pearson Creek	2	1,000	25.00				
Chamberlain or Woodworth Creek	5	2,300	57.50				
Springs	2	345	8.62				
Cottonwood or Shanley Creek	20	16,190	404.75				
John or Black Canyon Creek	1	150	3.75				
East Fork Shanley Creek	2	500	12.50				
West Fork (North) Shanley Creek	3	2,500	62.50	28	7	4,559.67	113.99
Unnamed Creek	1	150	3.75				
Springs	1	500	12.50				
Certain River	1	All	All				
Seepage Water	2	840	21.00				
Elk Creek	0	0	0				
Buckeye Gulch	2	450	11.25				
Boulder Creek	1	1,000	25.00				
Rabbit Creek	1	200	5.00				
TOTAL	1,741	1,214,225.50	30,355.63		322	100,885.23	2,522.13

WATER RIGHT DATA — POWELL COUNTY **APPROPRIATIONS AND DECREES BY STREAMS**

STREAMS	APPROPRIATIONS (Filings of Record)			DECREED RIGHTS			
	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.	Case No.	No. of Rights	Miner's Inches	Cu. Ft. Per Sec.
MISSOURI RIVER BASIN							
Missouri River	0	0	0				
Jefferson River	0	0	0				
Boulder River	0	0	0				
Indian Creek ¹	4	900	22.50				
Spring ²	1	120	3.00				
Total	5	1,020	25.50				

¹ Stream in Deer Lodge County, to be used in Powell County.

² Stream in Granite County, to be used in Powell County.

³ Stream in Jefferson County, to be used in Powell County.

⁴ Dunkleberg Creek Decree recorded and filed in Granite County Court House.

⁵ A "Ditch Decree," defining the capacity and water rights pertaining to a particular ditch system.

⁶ This decree is recorded and filed in both Deer Lodge and Powell Counties. The Decrees listed pertain only to Powell County.

DRAINAGES IN POWELL COUNTY NOT LOCATED

STREAMS	No. of Filings	Miner's Inches	Cu. Ft. Per Sec.
Chickaman Creek	2	1,000	25.00
Conorway Gulch	1	All	All
Cow Gulch	1	All	All
Davis Creek	1	All	All
North Fork Edam Creek	1	60	1.50
Harry Odoneghy Creek	1	120	3.00
Independent Gulch	1	100	2.50
Jones Creek	1	100	2.50
Julia Creek	1	6,400	160.00
Lake Creek	1	160	4.00
Long Gulch	1	All	All
Lost Chance Gulch	1	600	15.00
Little Bare Creek	1	200	5.00
Maggie Creek	1	200	5.00
Mountain View and Cooney Cooper Tunnel	1	120	3.00
Murphy Creek	1	All	All
Nigger Creek	1	400	10.00
Pinto Creek	1	200	5.00
Polygamy Creek	1	75	1.88
Quacking Asp Creek	1	100	2.50
Reservoir Creek	1	All	All
Ruby Creek	1	500	12.50
Russell Creek	1	120	3.00
Shouries Creek	1	400	10.00
Spring Creek	11	1,475	36.87
Tramway Creek	2	240	6.00
Wayne Gulch	1	100	2.50
Wild Aggie Creek	2	200	5.00
Right Tributary William Creek	1	100	2.50
Young Bam Gulch	1	500	12.50
Unnamed Creek	7	1,800	45.00
Deep Lake	1	12,000	300.00
Golden Chief Lake	1	500	12.50
Fish Lake	1	300	7.50
B. K. R. Spring	1	10	.25
Nigger Spring	1	12.50	.31
Warm Spring	1	All	All
Unnamed Springs	17	501.50	12.54
Yellow Jacket Spring	1	All	All
Waste Waters Kirby Shaft	1	10	.25
Total	75	28,604	715.10

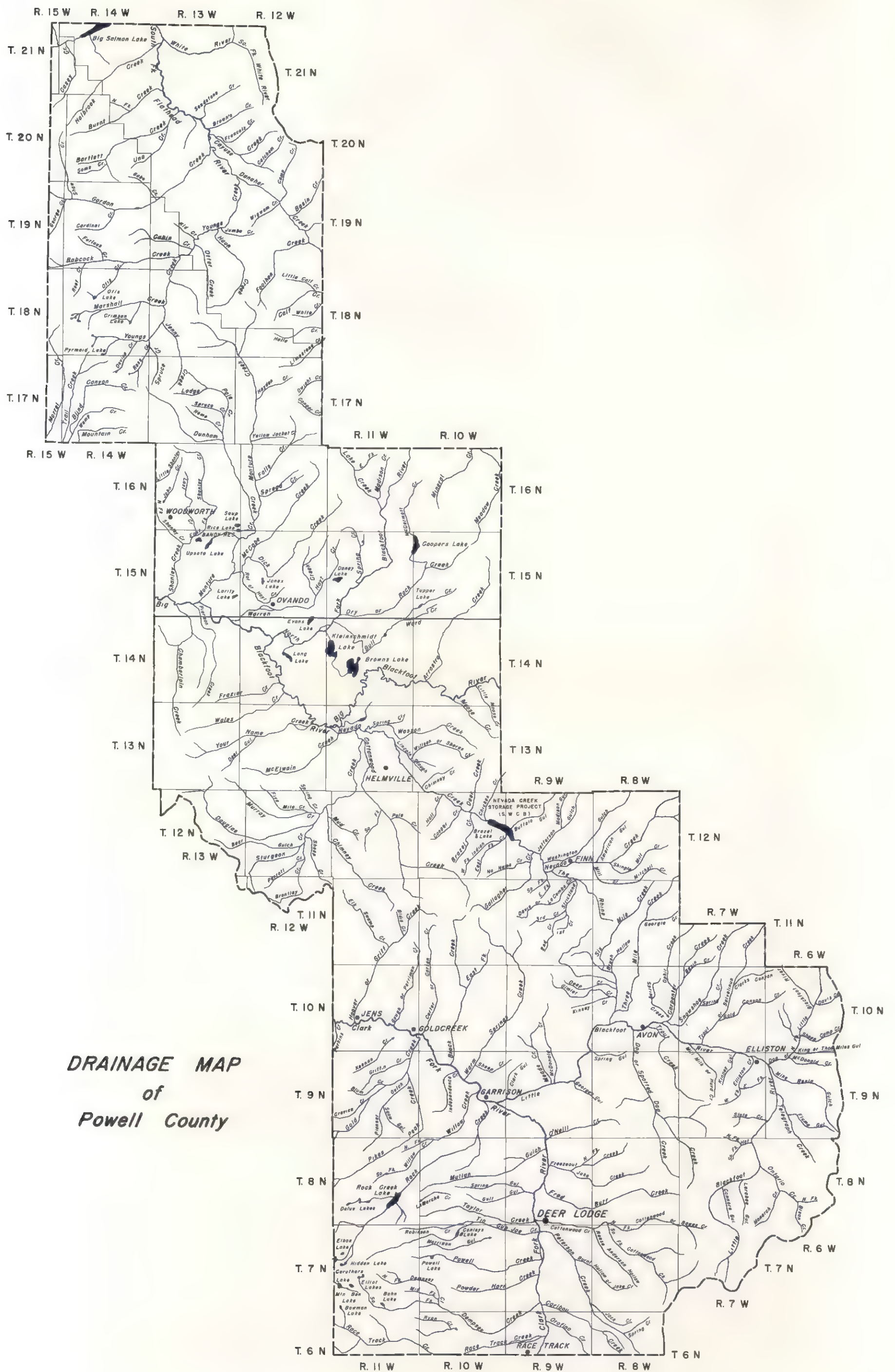
WATER RESOURCES SURVEY

Powell County, Montana

Part II

Maps Showing Irrigated Areas

Published by
STATE ENGINEER'S OFFICE
Helena, Montana
June, 1959



MAP INDEX




Township	Range	Page	Township	Range	Page
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6 North	9 West	2	11 North	8 West	20
6 North	10 West	3	11 North	9 West	21
7 North	8 West	4	11 North	11 West	19
7 North	9 West	5	12 North	8 West	22
7 North	10 West	6	12 North	9 West	23
8 North	7 West	7	12 North	10 West	24
8 North	8 West	8	12 North	11 West	25
8 North	9 West	9	12 North	12 West	26
8 North	10 West	10	13 North	10 West	27
9 North	6 West	11	13 North	11 West	28
9 North	7 West	7	13 North	12 West	29
9 North	8 West	12	14 North	10 West	30
9 North	9 West	13	14 North	11 West	31
9 North	10 West	14	14 North	12 West	32
9 North	11 West	15	15 North	10 West	33
10 North	6 West	16	15 North	11 West	34
10 North	7 West	17	15 North	12 West	35
10 North	8 West	18	15 North	13 West	36
10 North	9 West	18	16 North	13 West	37
10 North	10 West	19			

MAP SYMBOL INDEX



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- COUNTY LINE
- NATIONAL FOREST LINE



























DITCHES

-  CANALS OR DITCHES
-  DRAIN DITCHES
-  PROPOSED DITCHES

TRANSPORTATION

-  PAVED ROADS
-  UNPAVED ROADS
-  RAILROADS
-  STATE HIGHWAY
-  U.S. HIGHWAY
-  AIRPORT

STRUCTURES & UNITS

- | | |
|---|---|
|  DAM |  SPRING |
|  DIKE |  SWAMP |
|  FLUME |  GAUGING STATION |
|  SIPHON |  POWER PLANT |
|  SPILL |  STORAGE TANK |
|  SPRINKLER SYSTEM |  CEMETERY |
|  WEIR |  FAIRGROUND |
|  PIPE LINE |  FARM OR RANCH UNIT |
|  PUMP |  LOOKOUT STATION |
|  PUMP SITE |  RANGER STATION |
|  RESERVOIR |  RAILROAD TUNNEL |
|  WELL |  SCHOOL |
|  NATURAL CARRIER USED AS DITCH |  SHAFT, MINE, OR DRIFT |

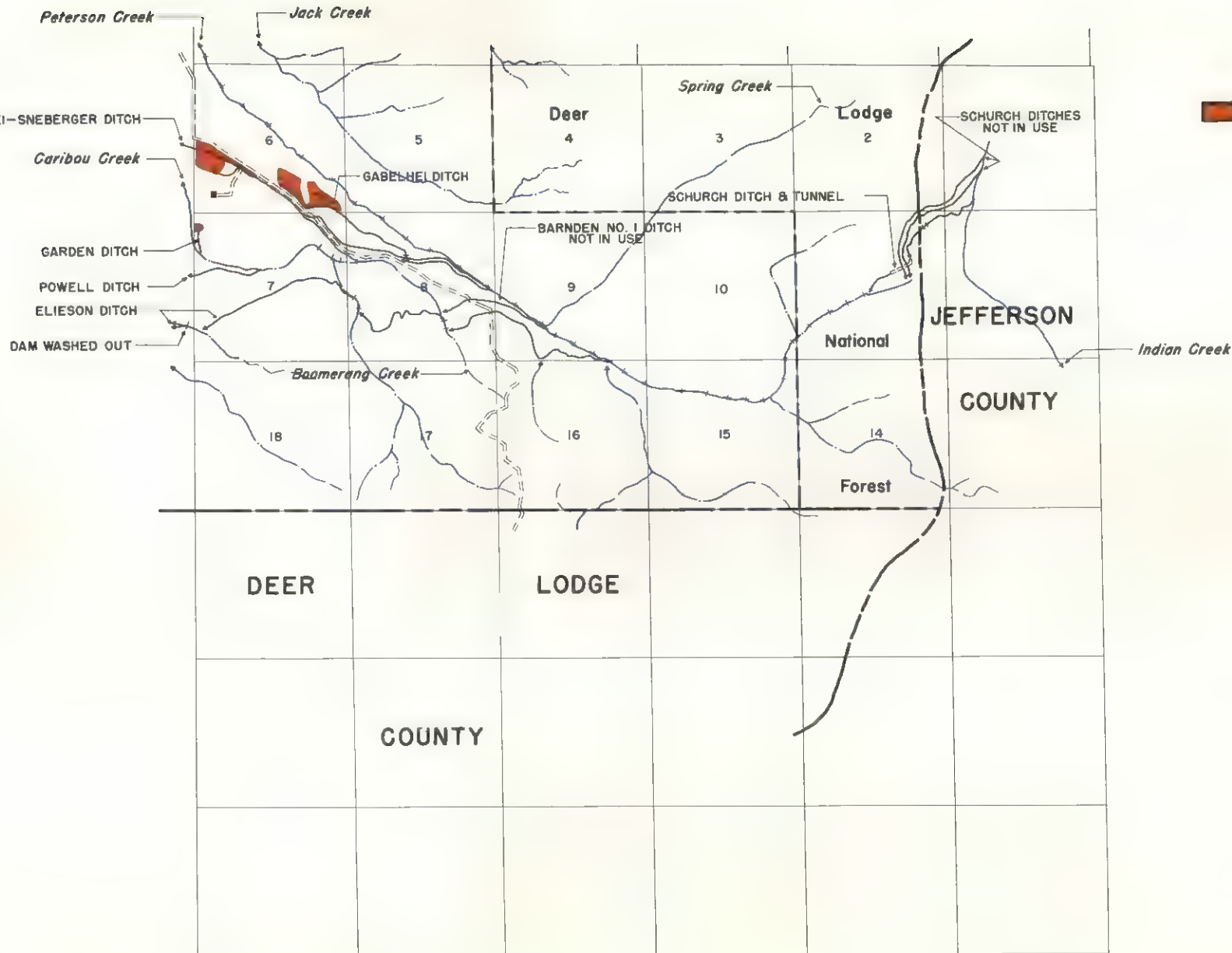
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Rge. 8 WEST

LEGEND



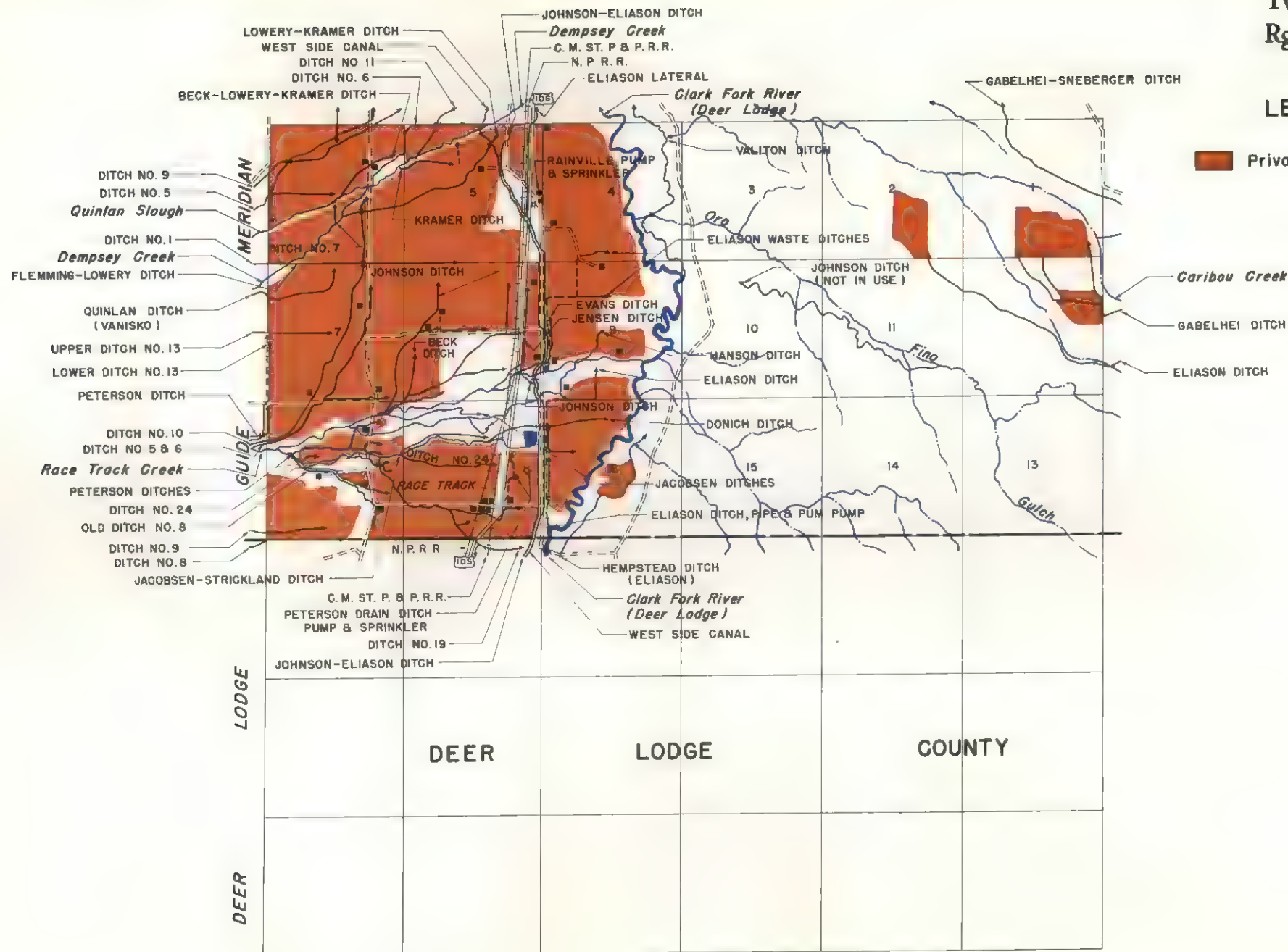
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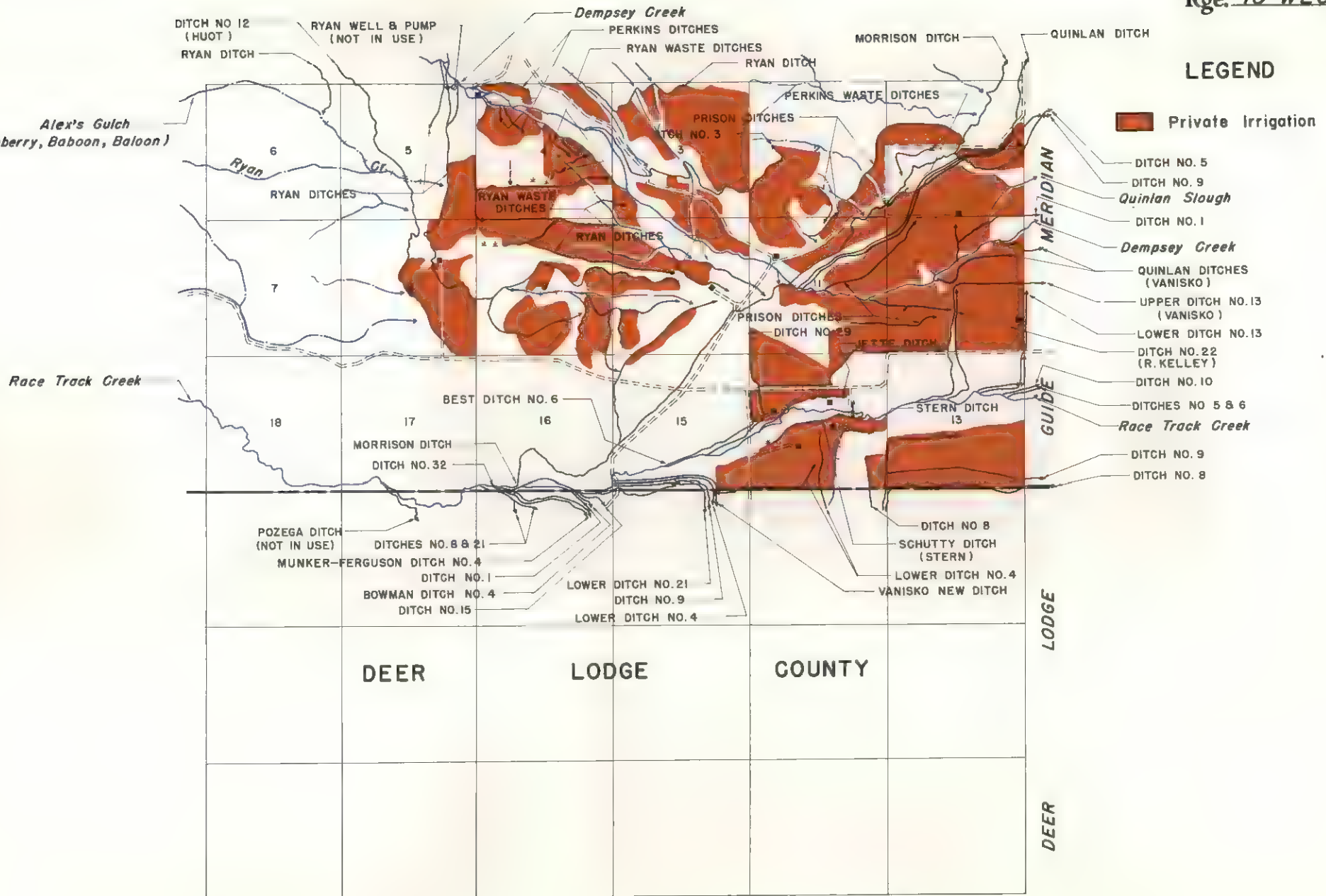


Twp. 6 NORTH
Rge. 9 WEST

LEGEND

 Private Irrigation



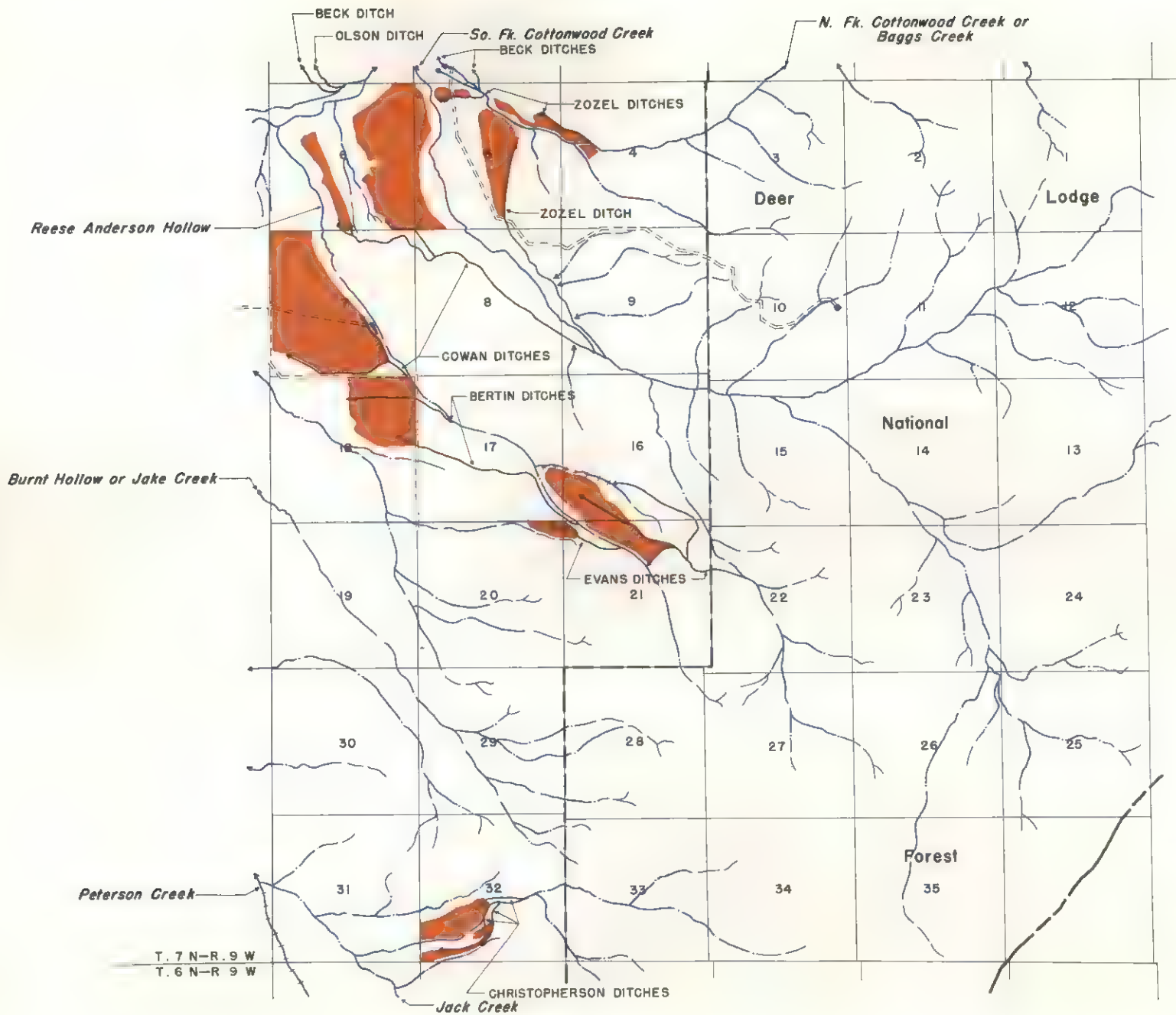


Twp. 7 NORTH

Rge. 8 WEST

LEGEND

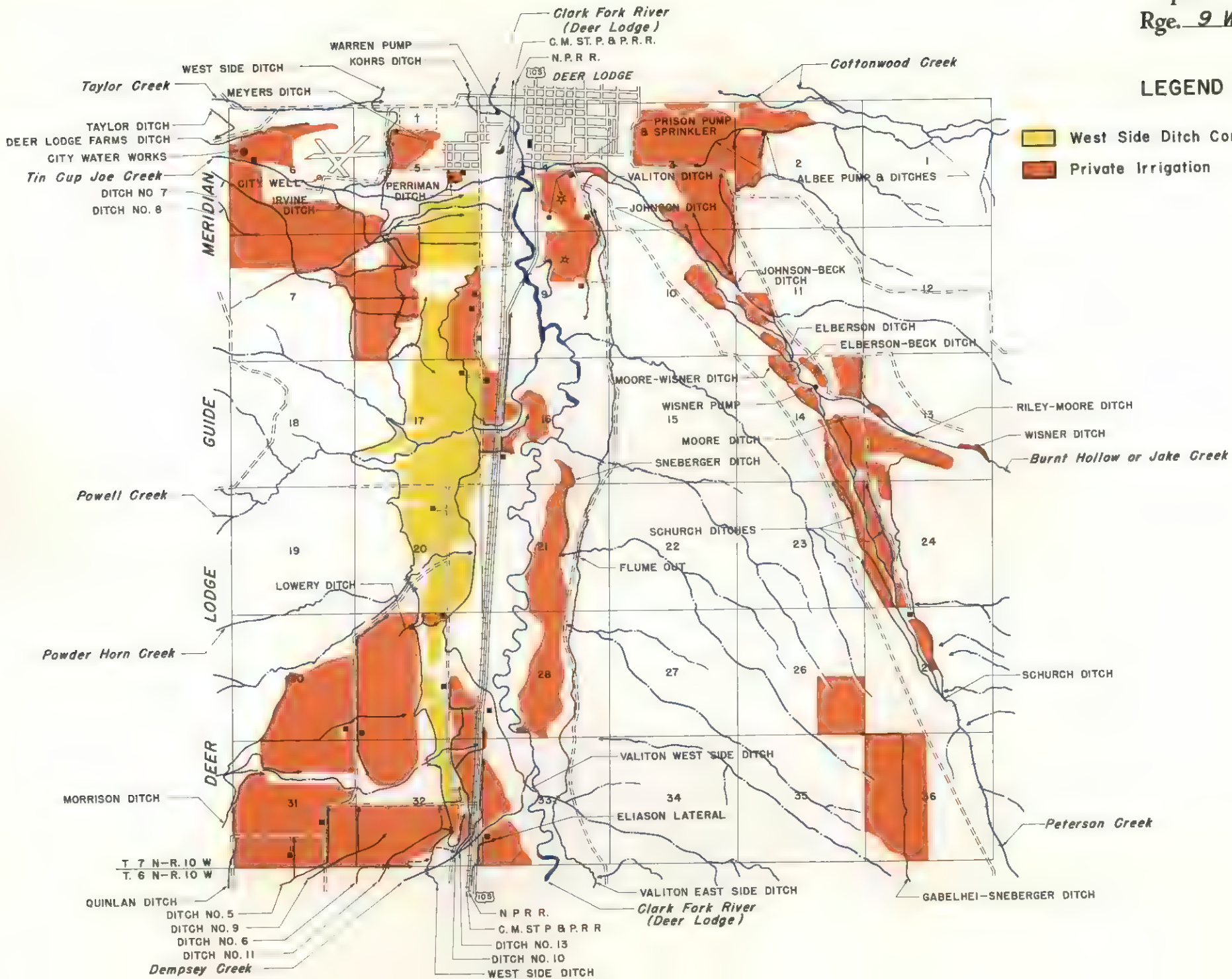
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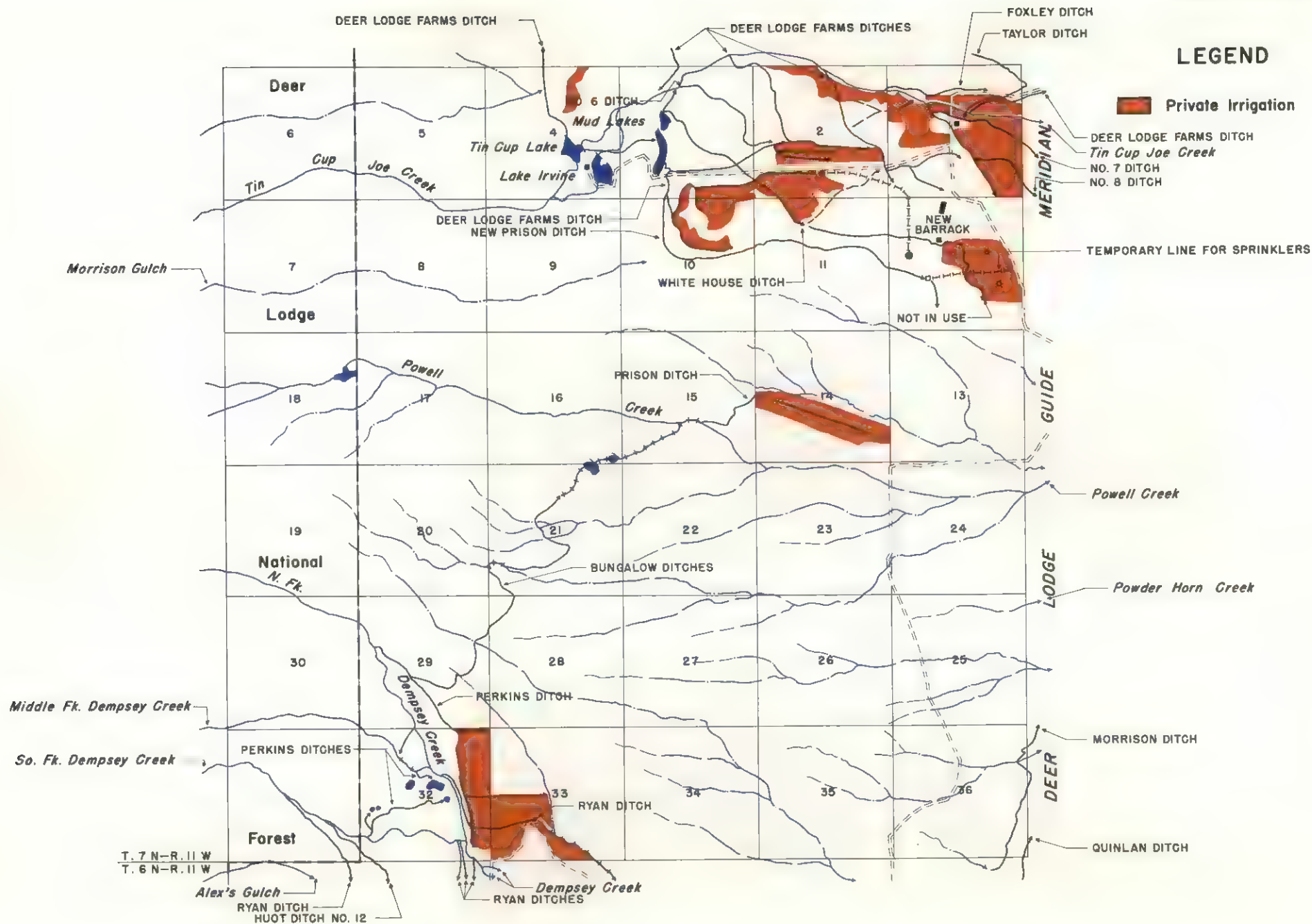


JEFFERSON
COUNTY

LEGEND

- West Side Ditch Company
- Private Irrigation

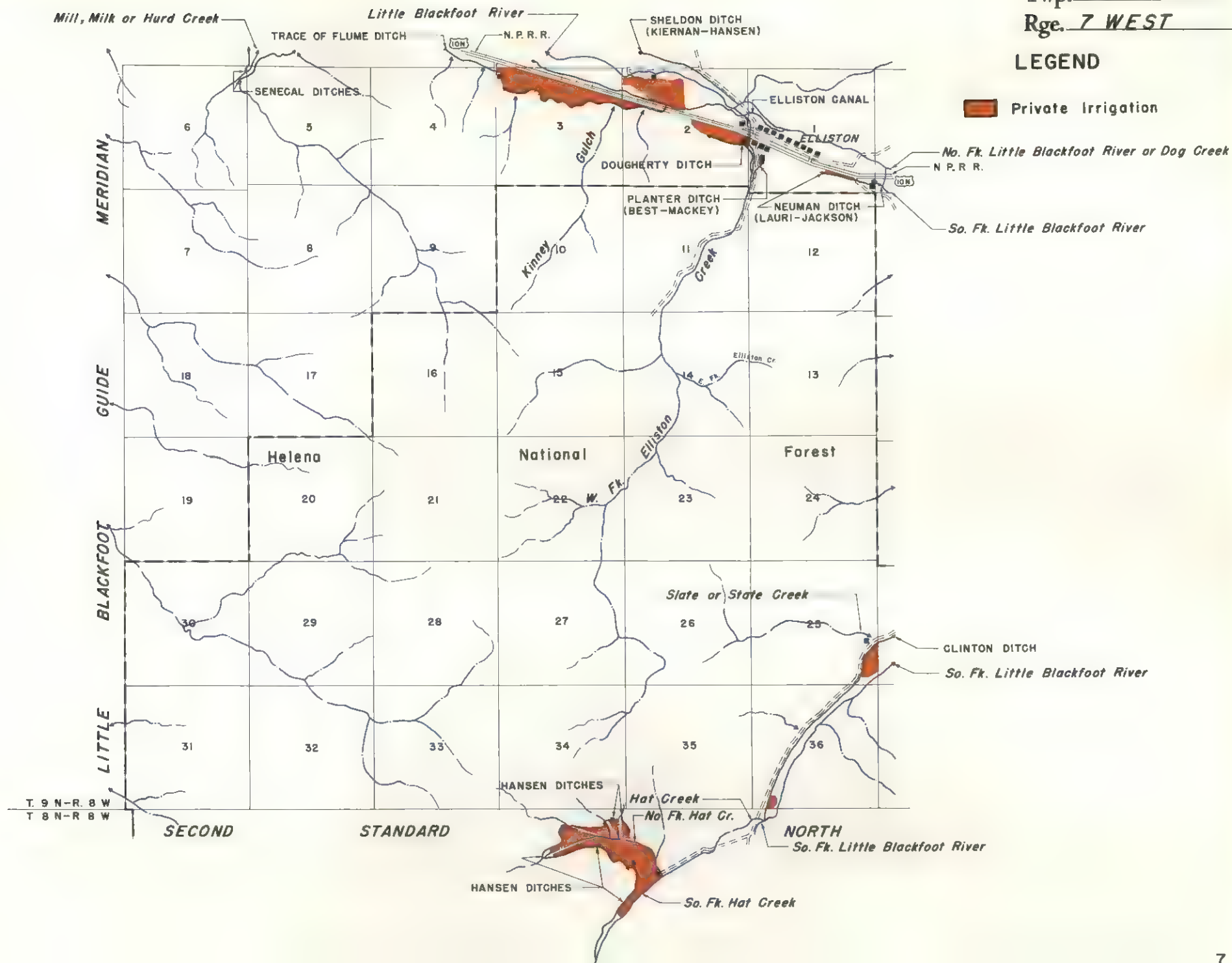




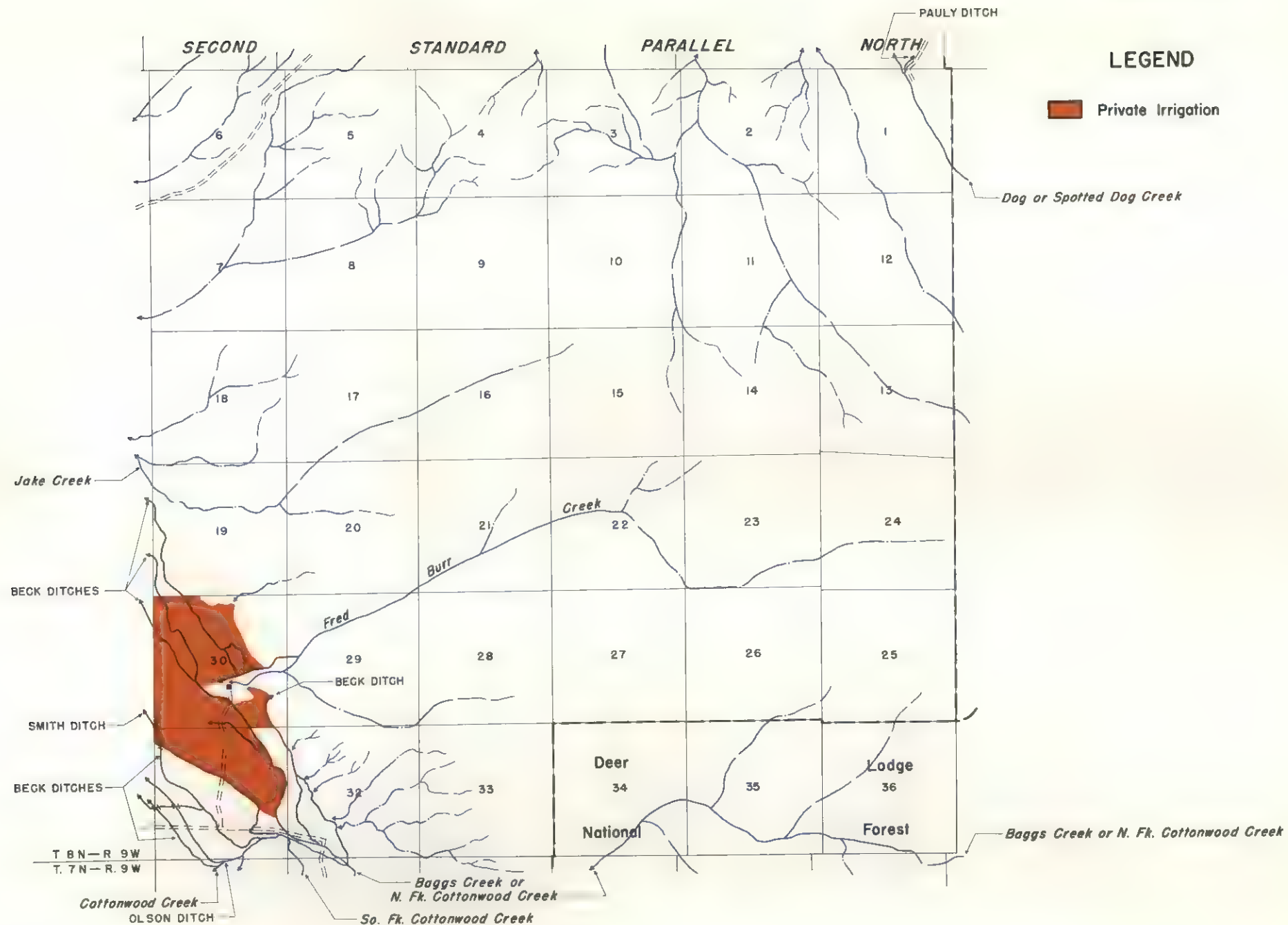
Twp. 8 & 9 NORTH
Rge. 7 WEST

LEGEND

 Private Irrigation



Twp. 8 NORTH
Rge. 8 WEST

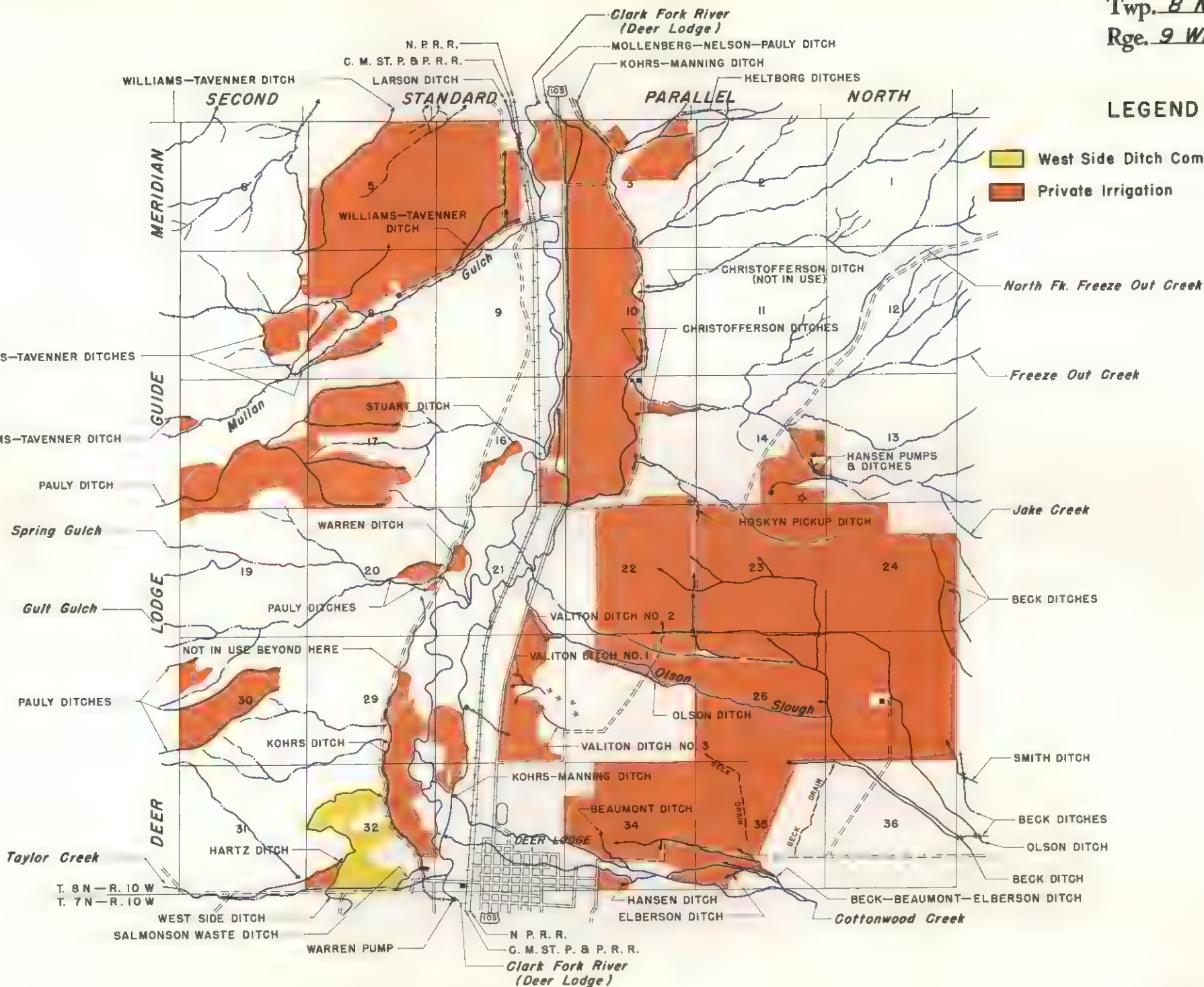


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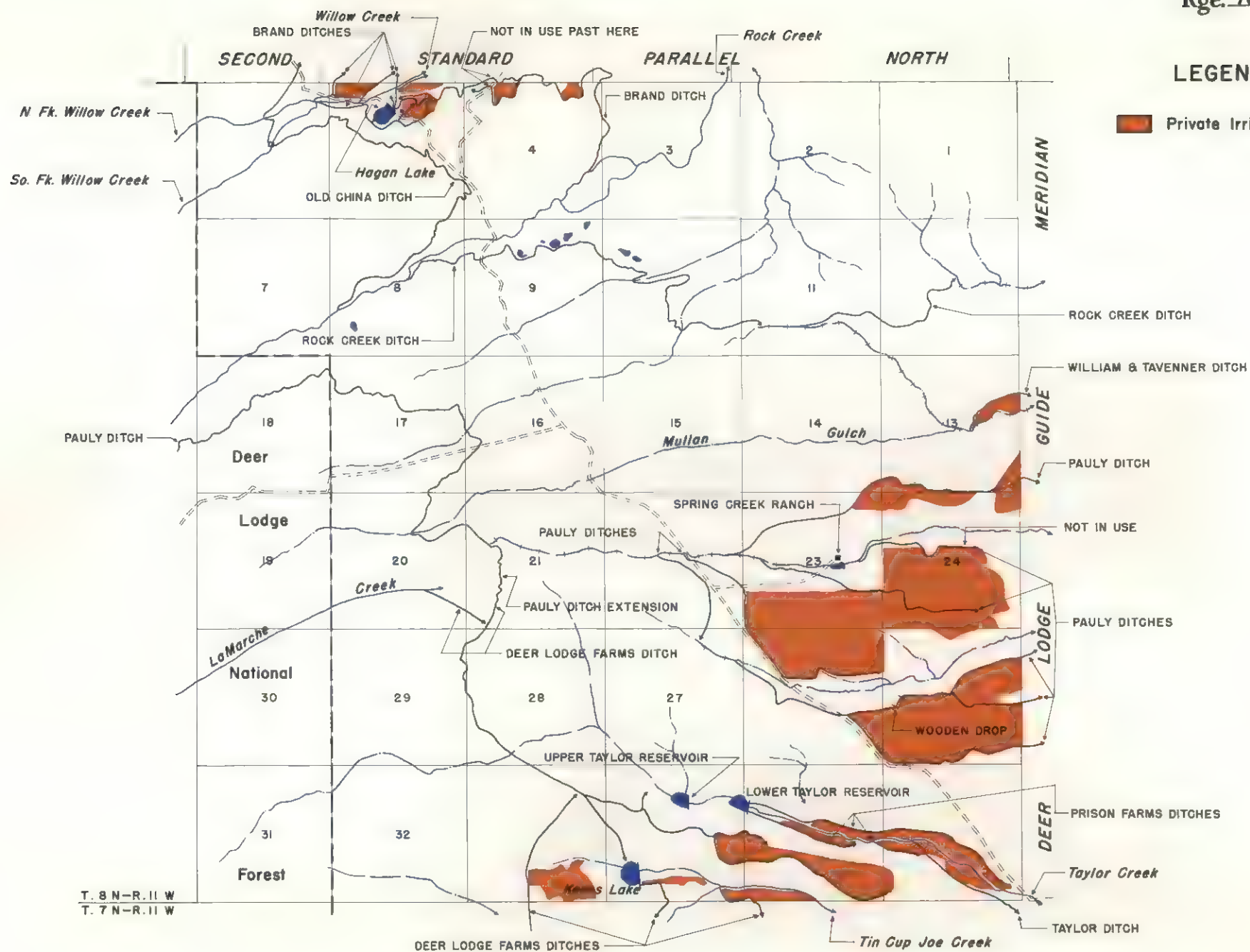
Rge. 9 WEST

LEGEND

- West Side Ditch Company
- Private Irrigation



10



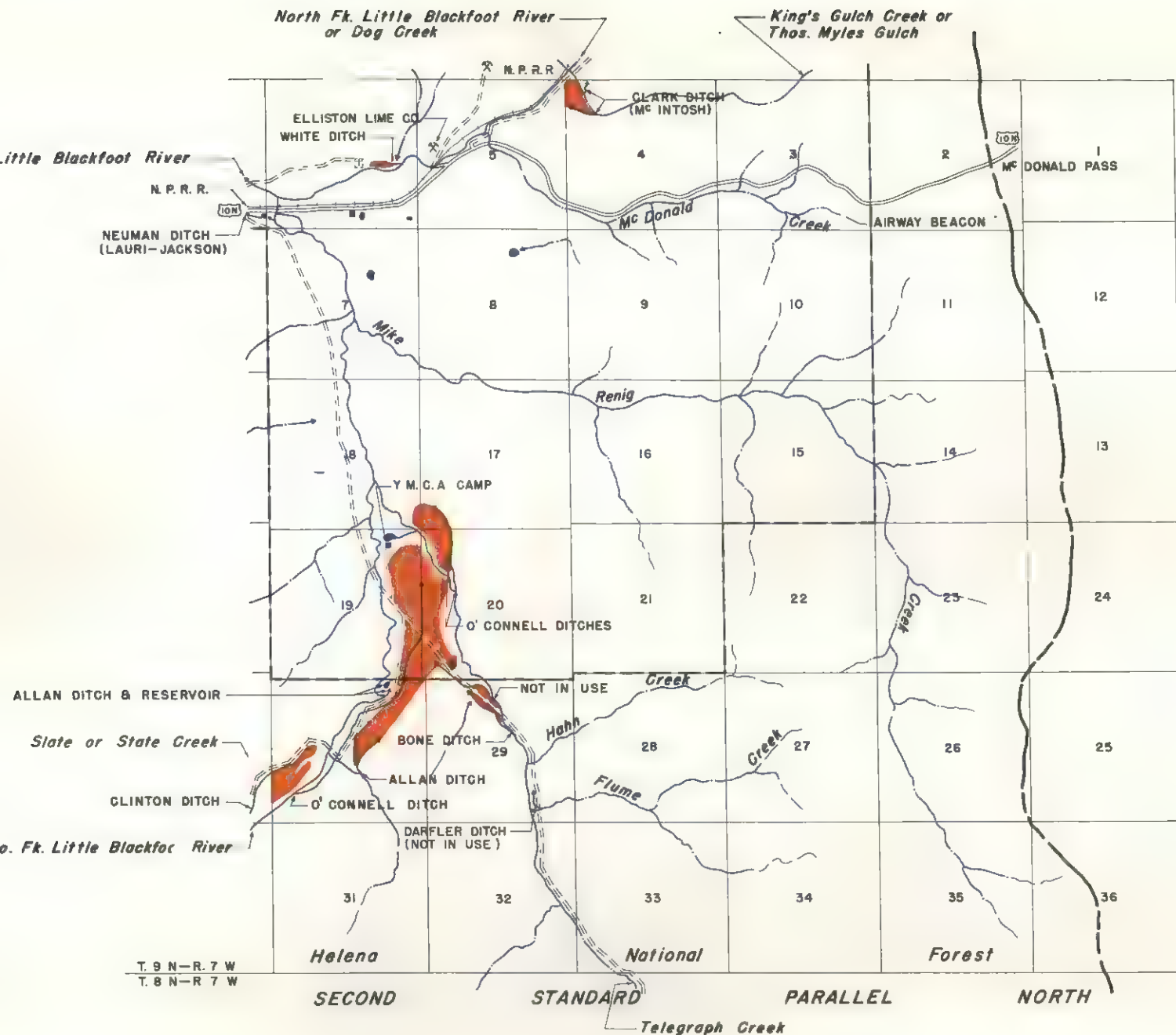
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Rge. 6 WEST

LEGEND

 Private irrigation

LEWIS AND CLARK

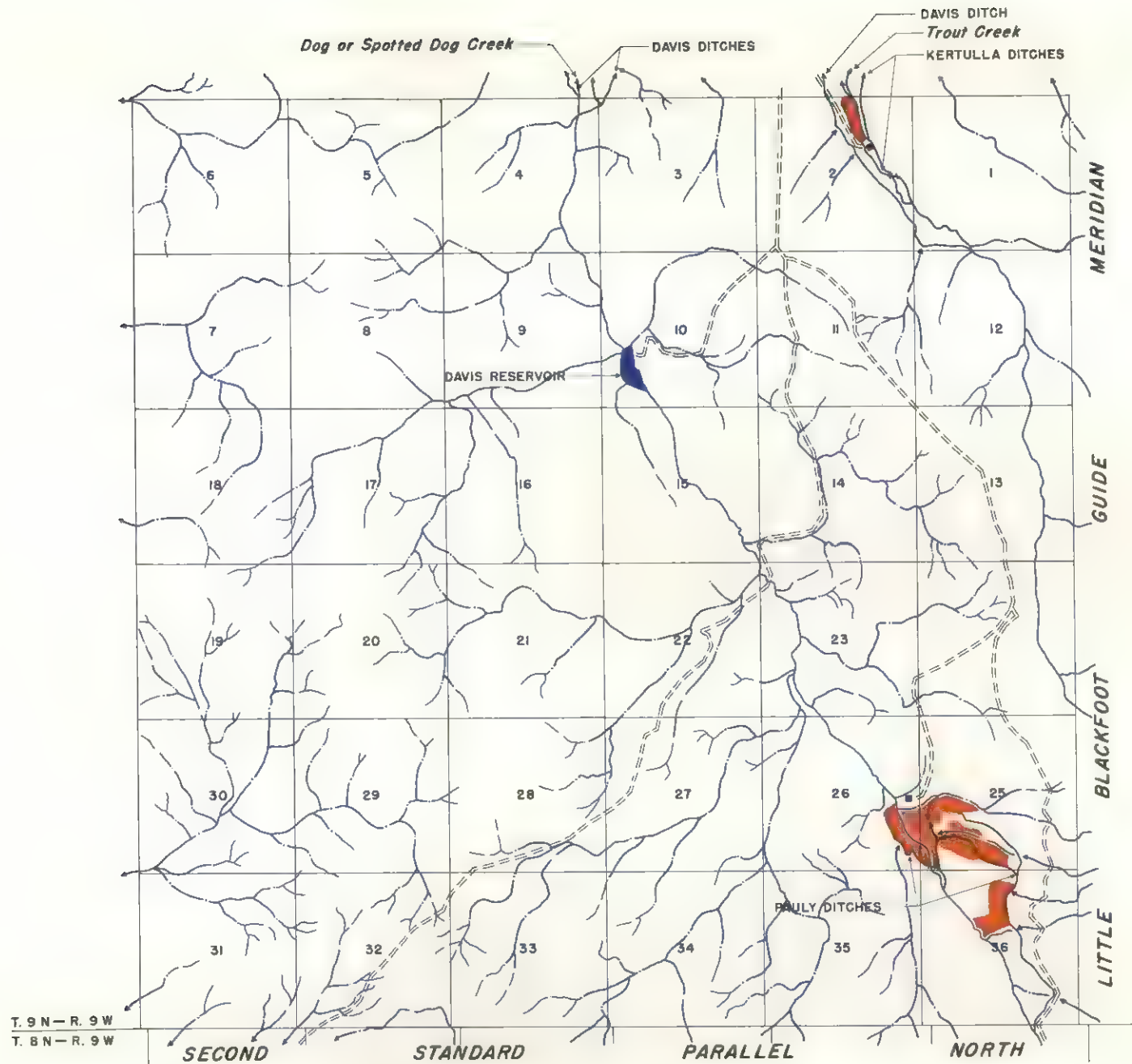
COUNTY



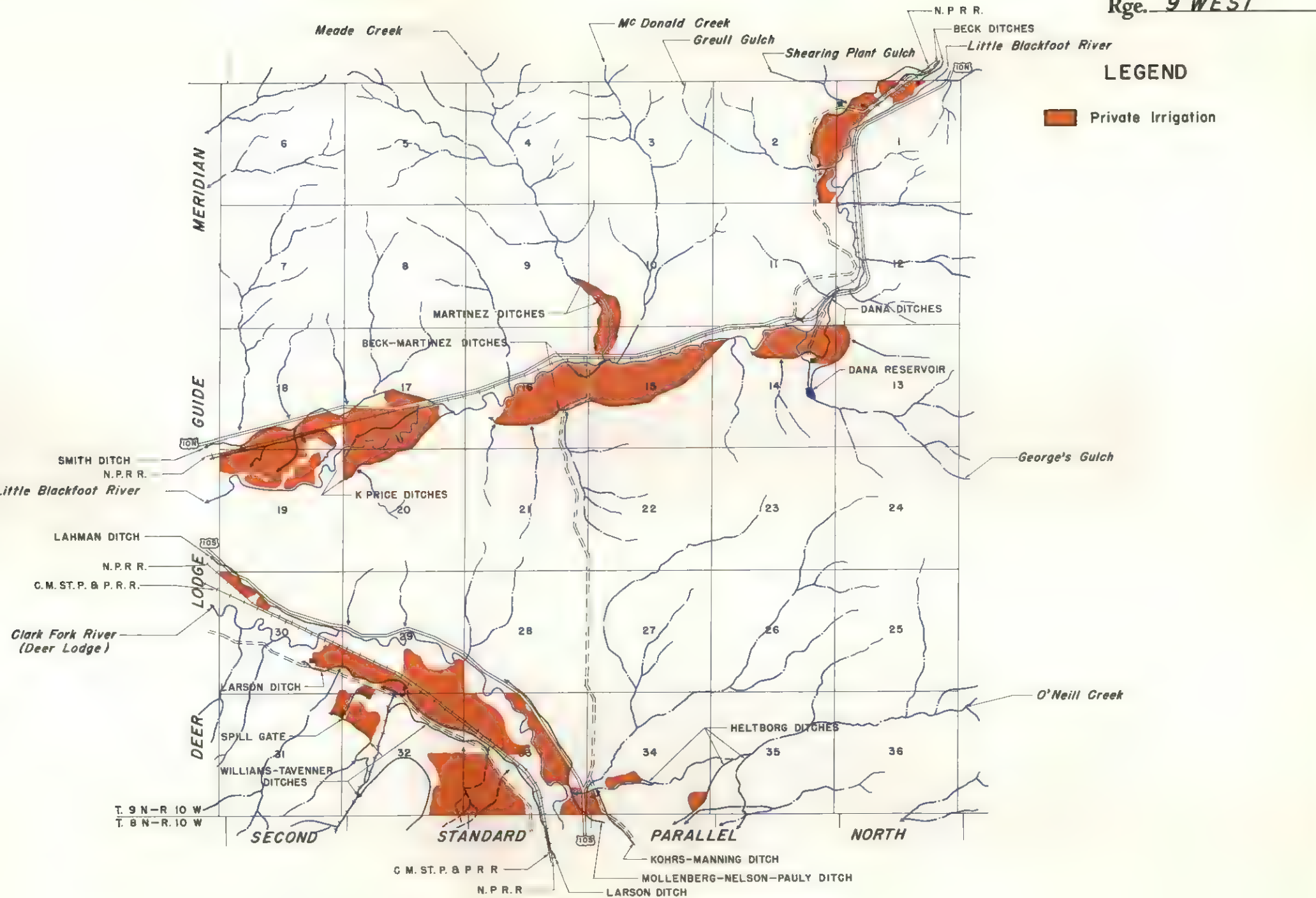
Twp. 9 NORTH
Rge. 8 WEST

LEGEND

 Private Irrigation

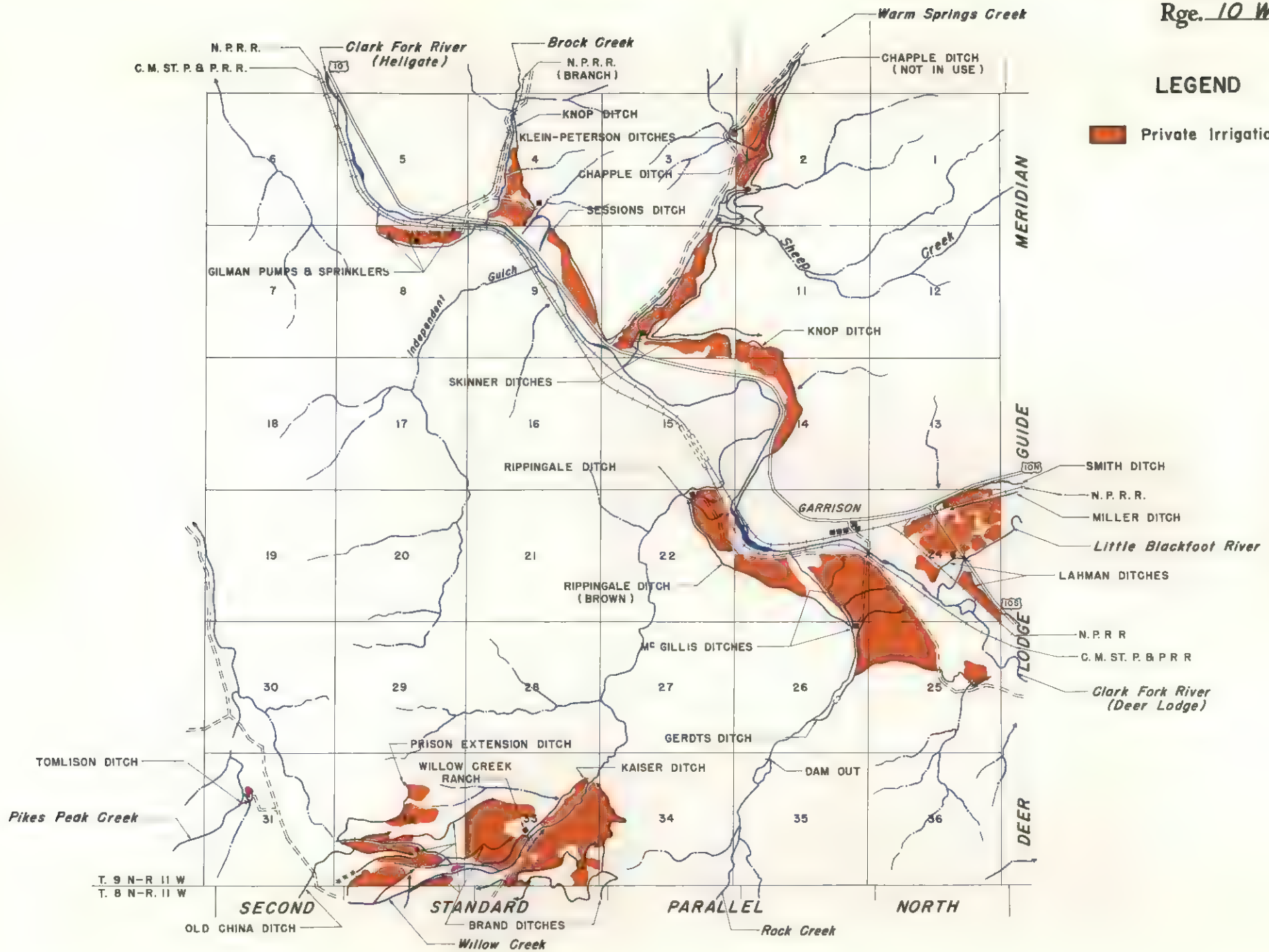


Rge. 9 WEST



LEGEND

 Private Irrigation

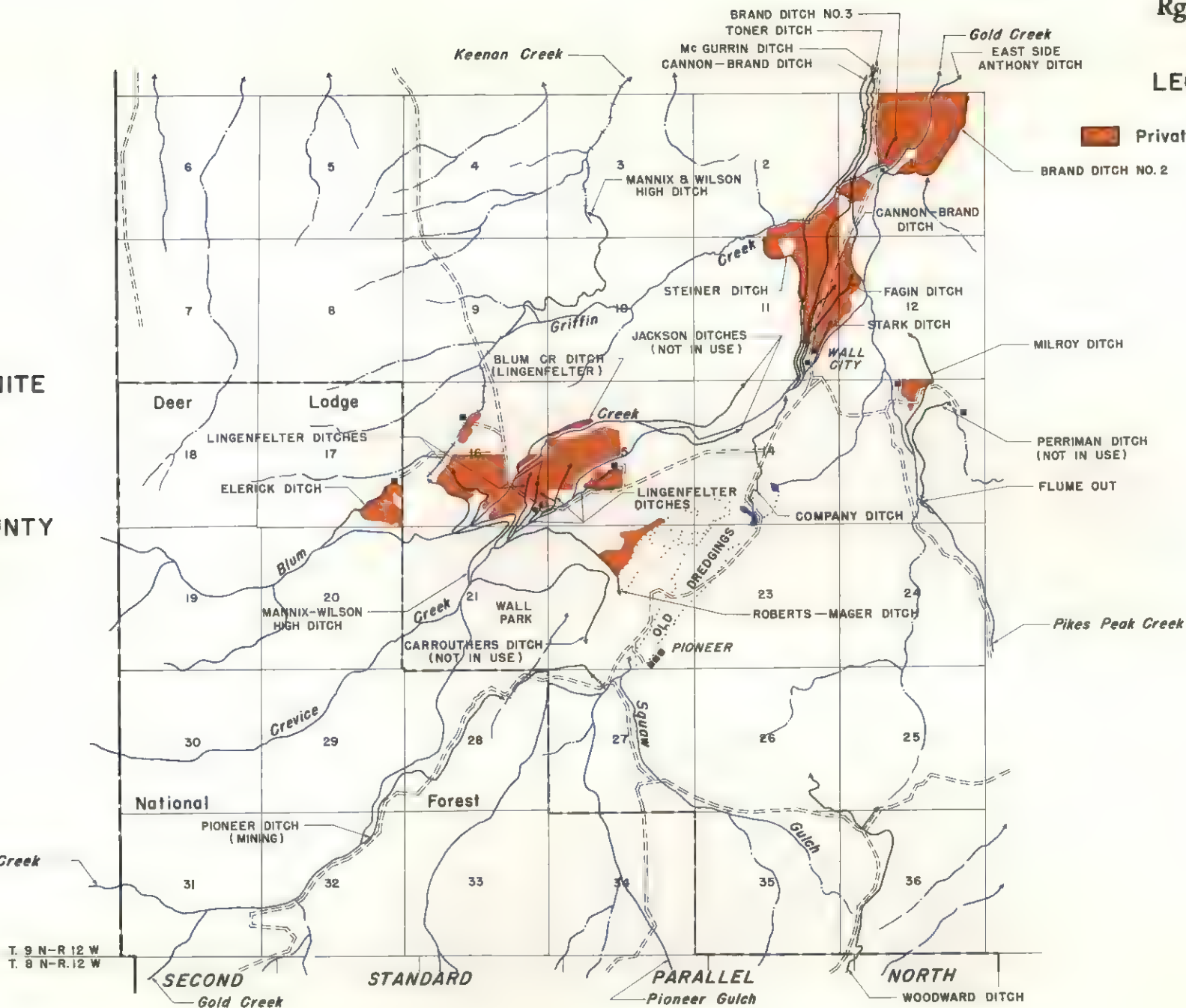


Twp. 9 NORTH
Rge. 11 WEST

LEGEND

 Private Irrigation

GRANITE
COUNTY



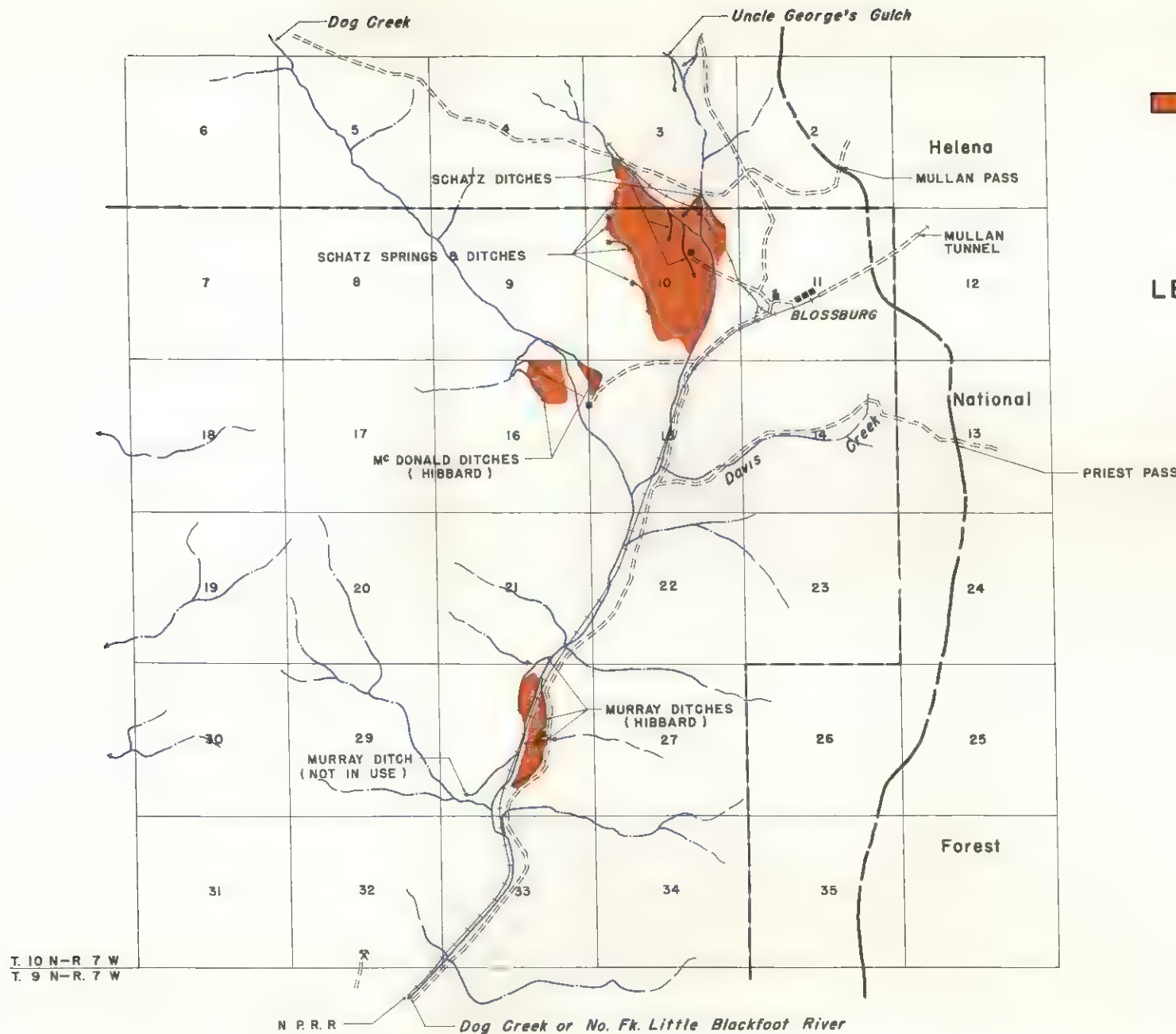
Twp. 10 NORTH
Rge. 6 WEST

LEGEND

 Private Irrigation

LEWIS & CLARK

COUNTY

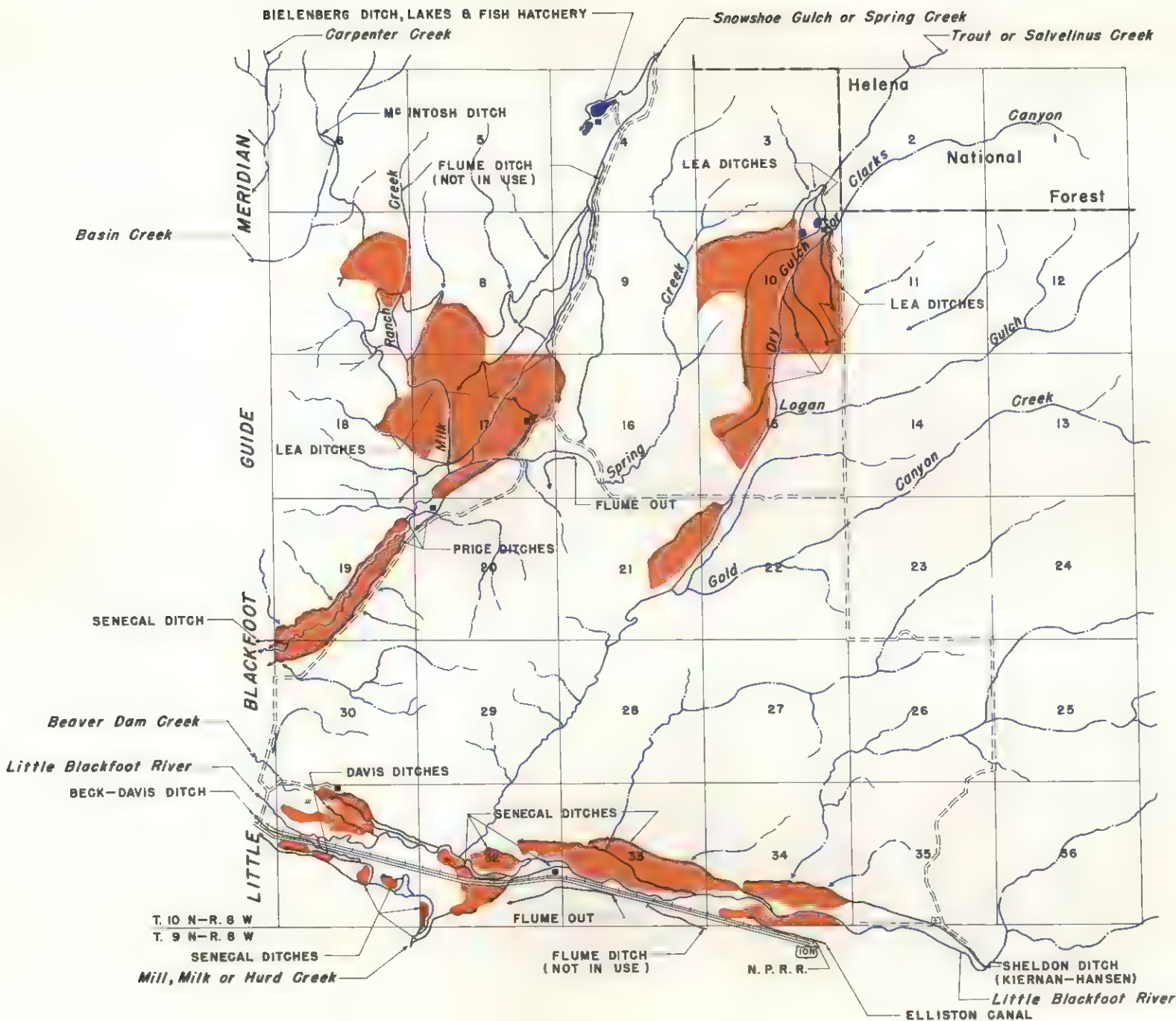


Twp. 10 NORTH

Rge. 7 WEST

LEGEND

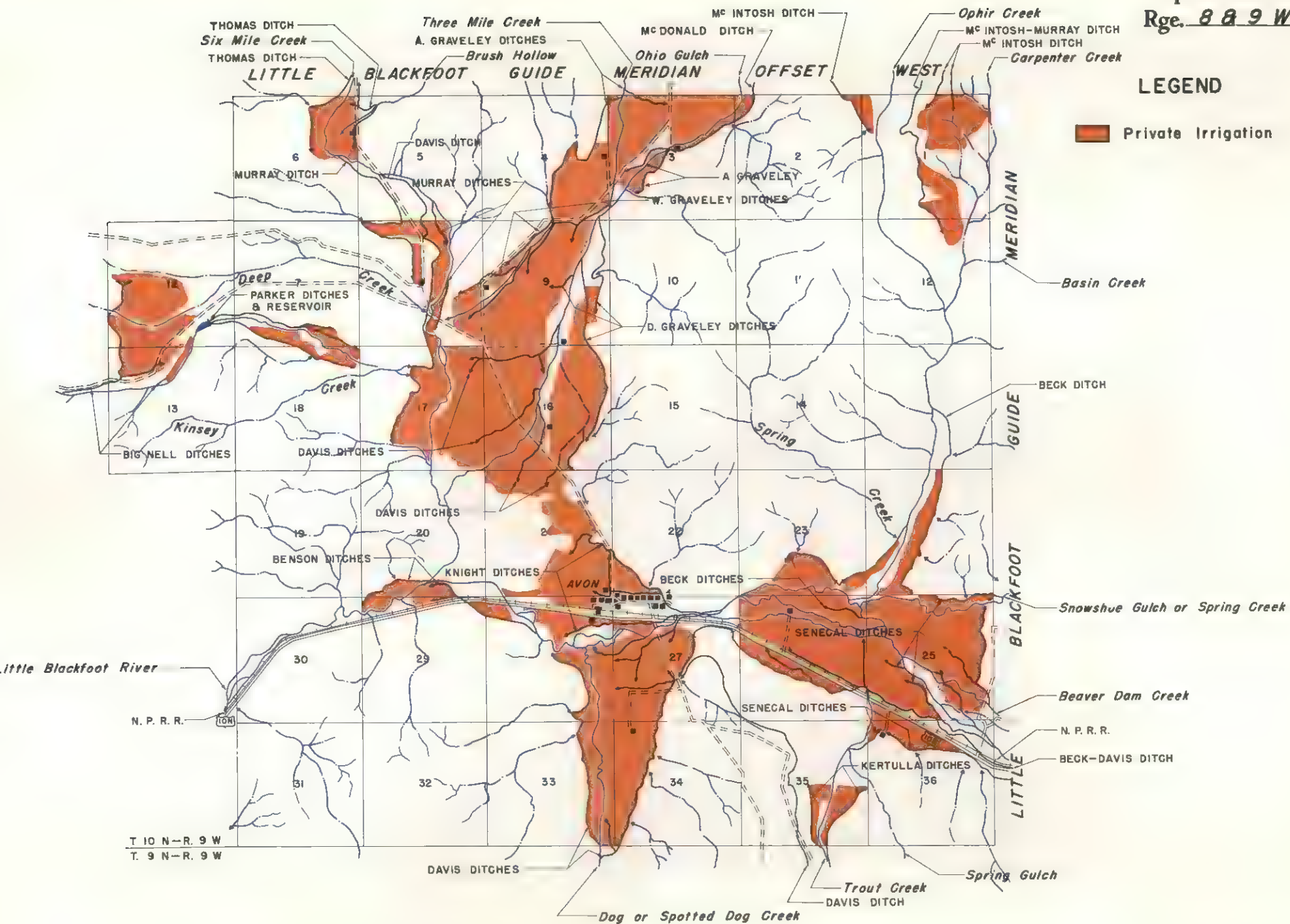
 Private Irrigation



Twp. 10 NORTH
Rge. 8 & 9 WEST

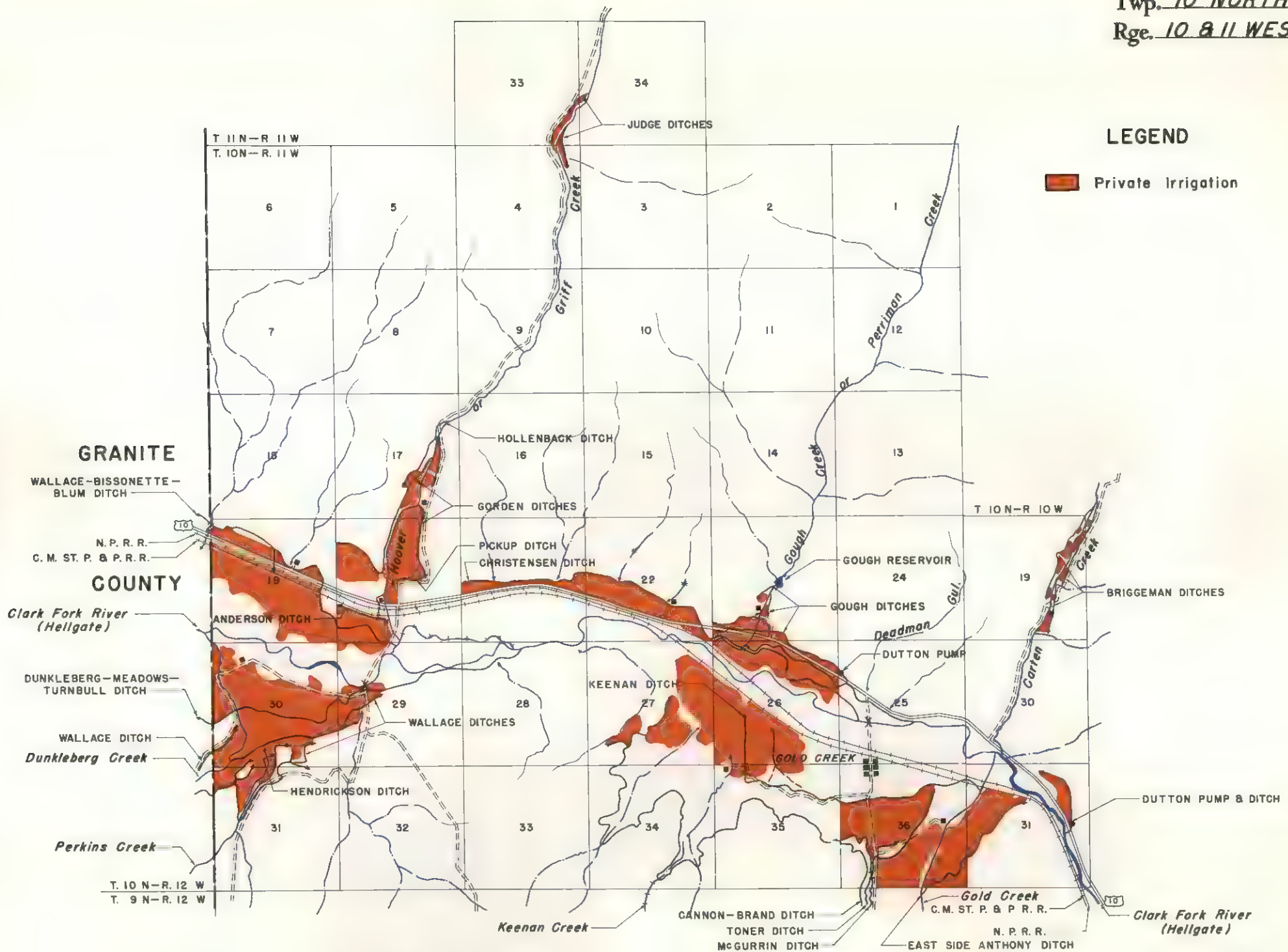
LEGEND

 Private Irrigation

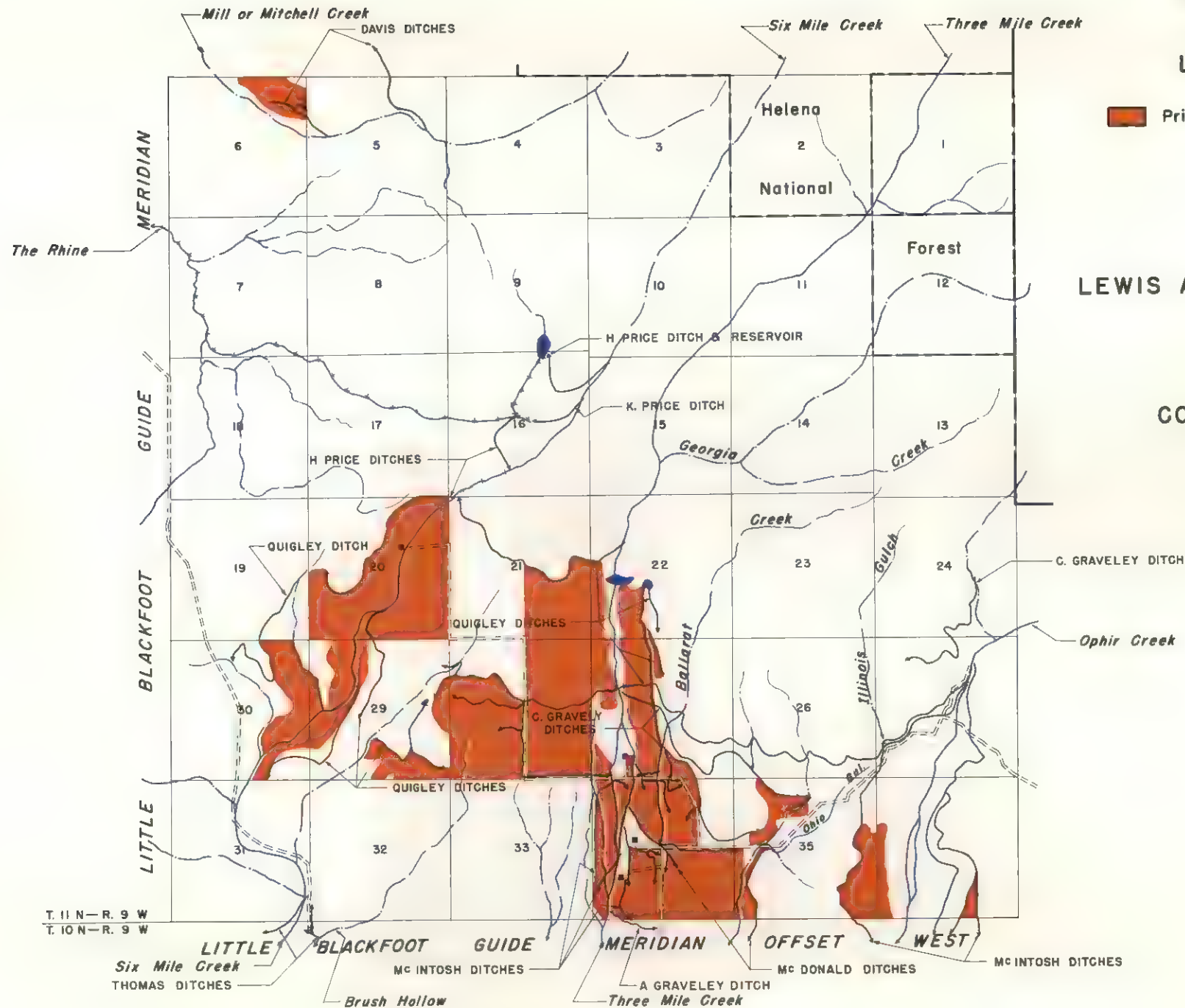


LEGEND

 Private Irrigation



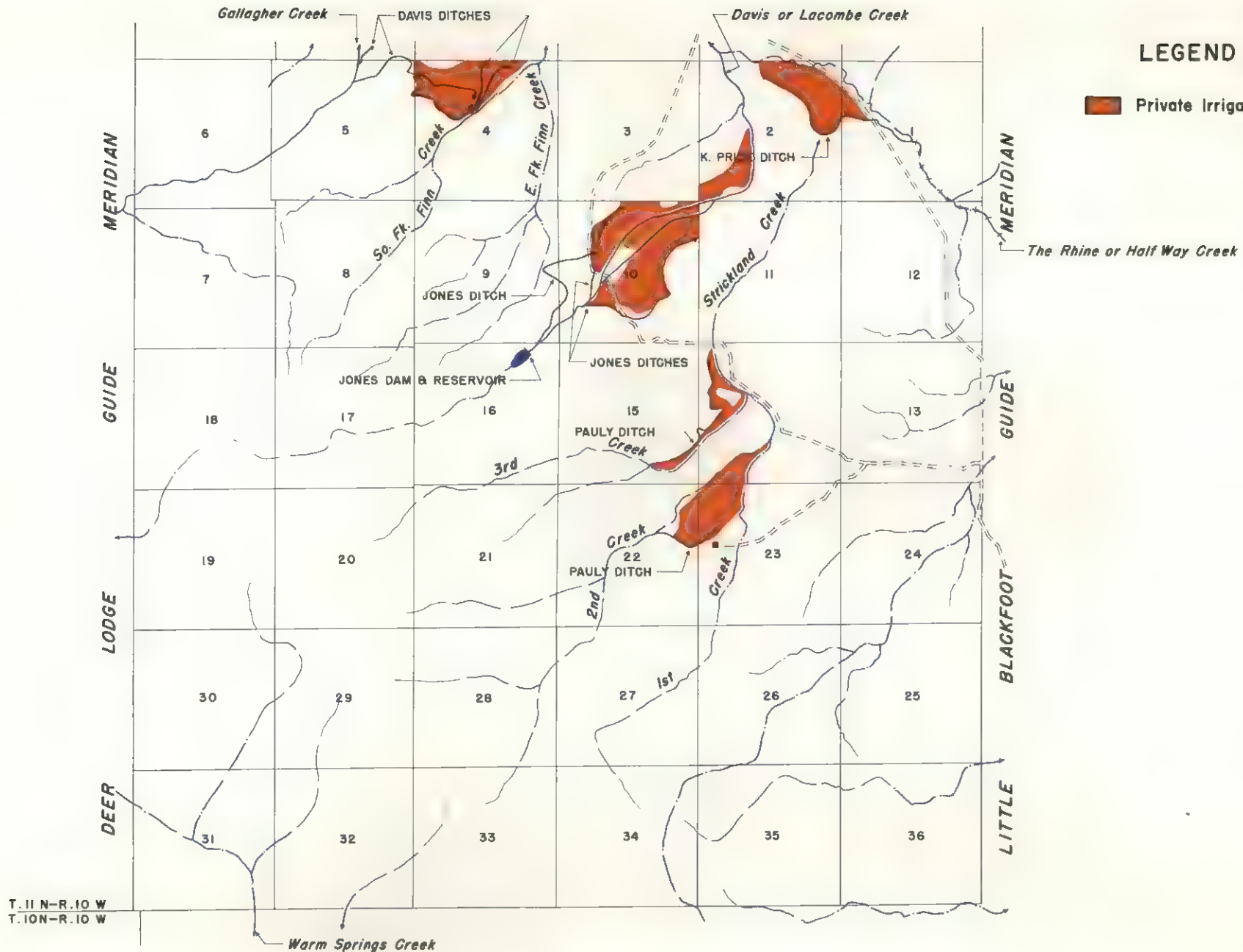
Twp. 11 NORTH
Rge. 8 WEST



Twp. 11 NORTH
Rge. 9 WEST

LEGEND

 Private Irrigation

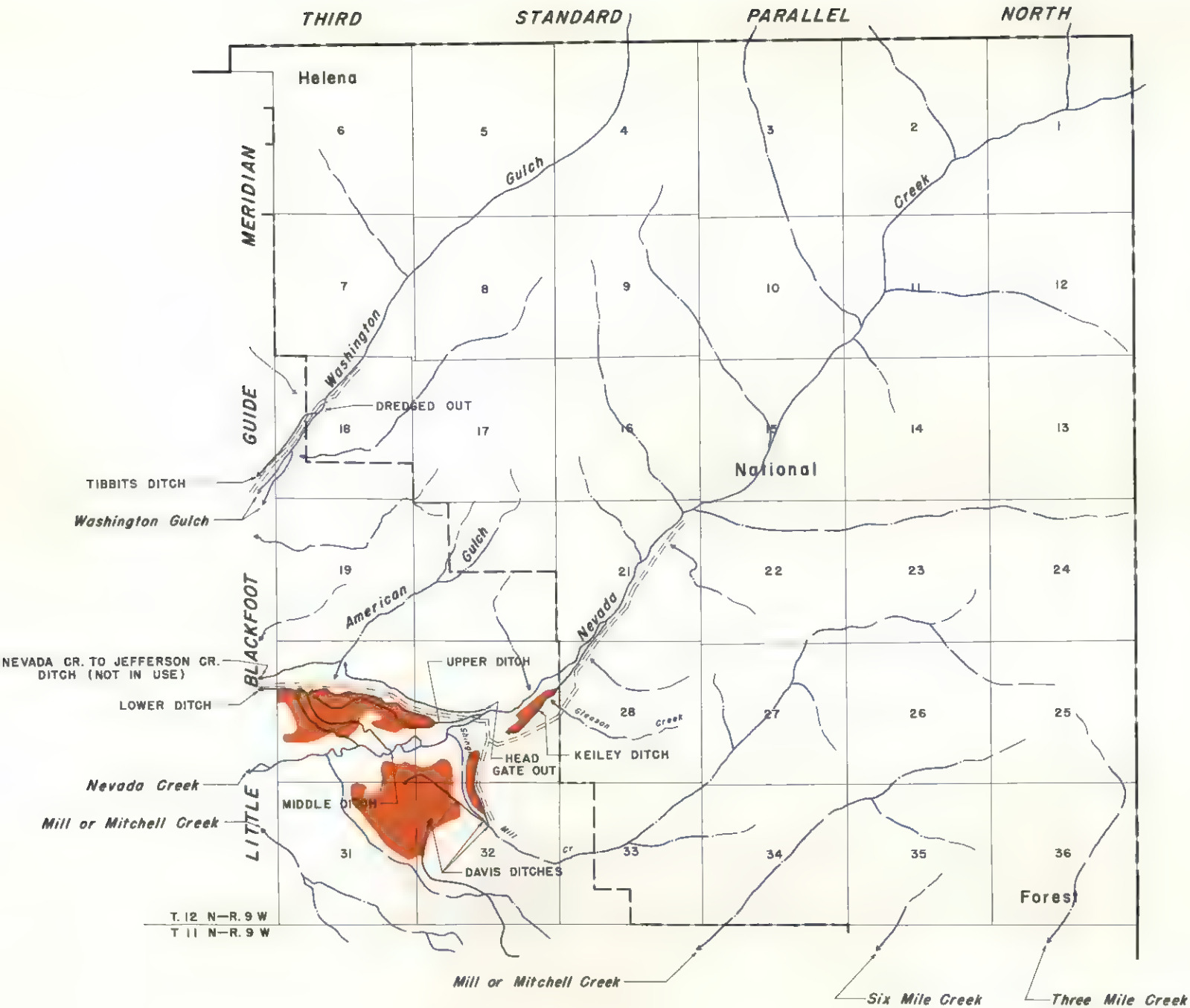


Twp. 12 NORTH
Rge. 8 WEST

LEGEND

 Private Irrigation

LEWIS AND CLARK COUNTY

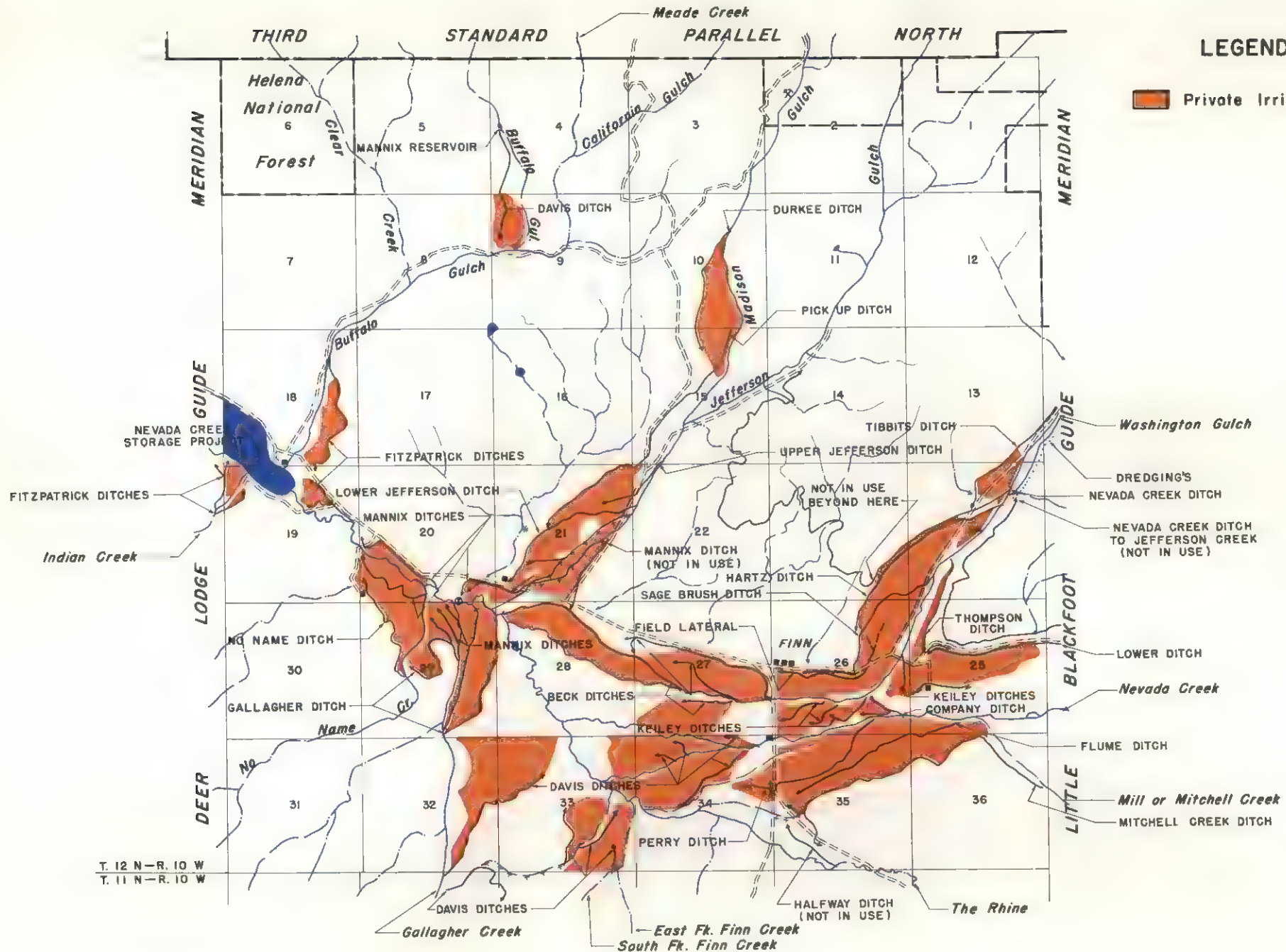


LEWIS AND CLARK COUNTY

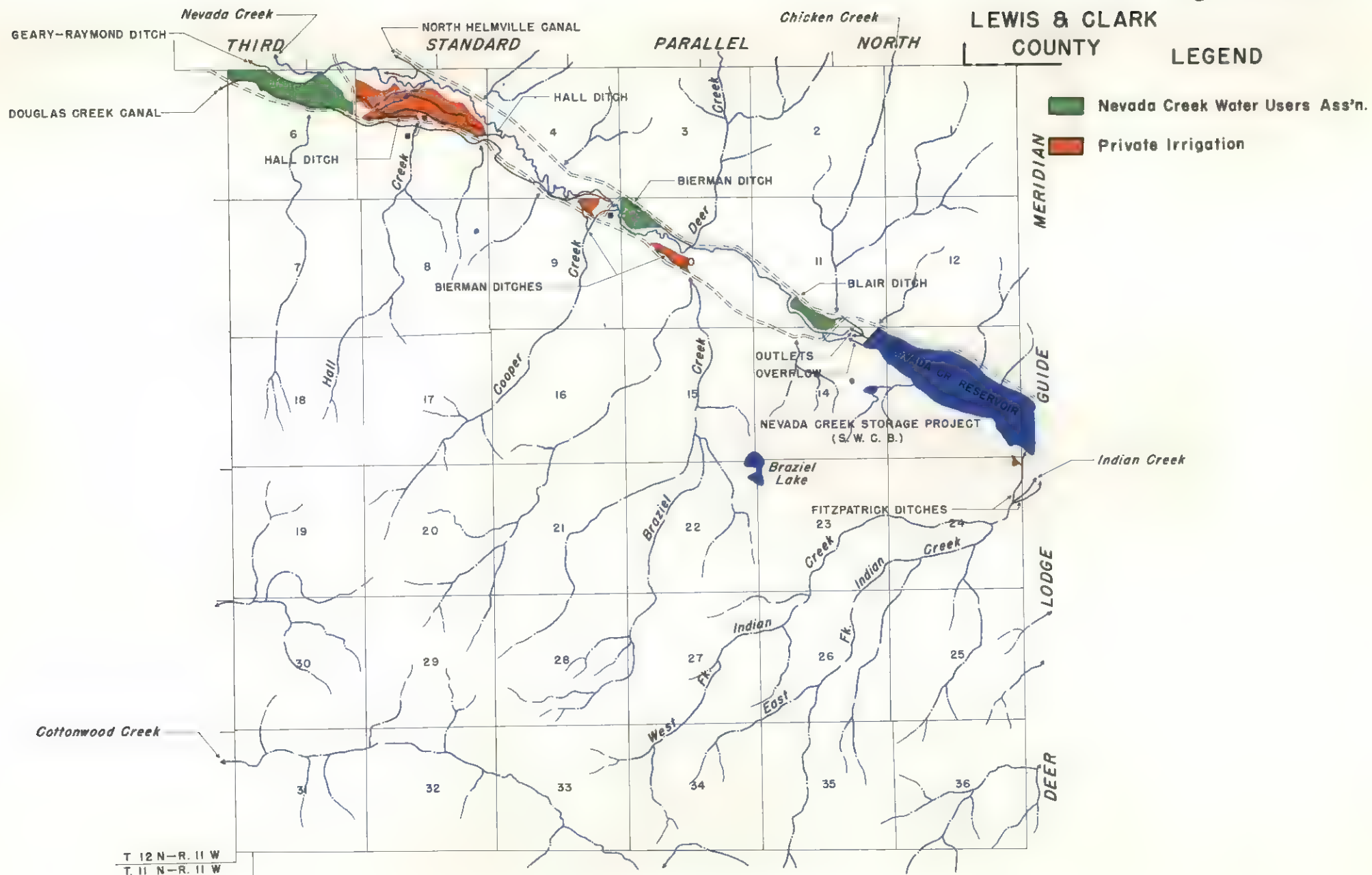
Twp. 12 NORTH
Rge. 9 WEST

LEGEND

 Private Irrigation



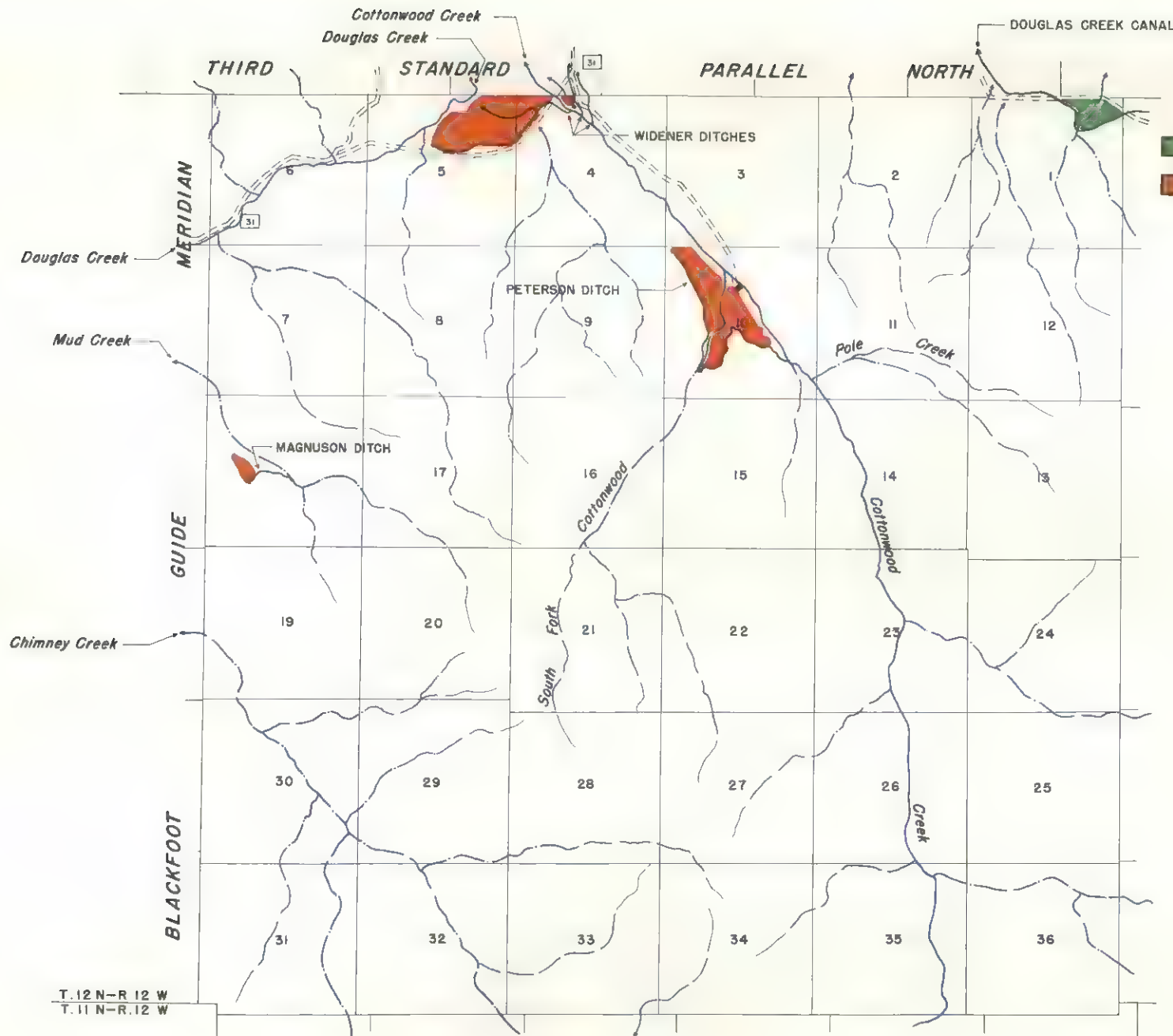
Twp. 12 NORTH
 Rge. 10 WEST

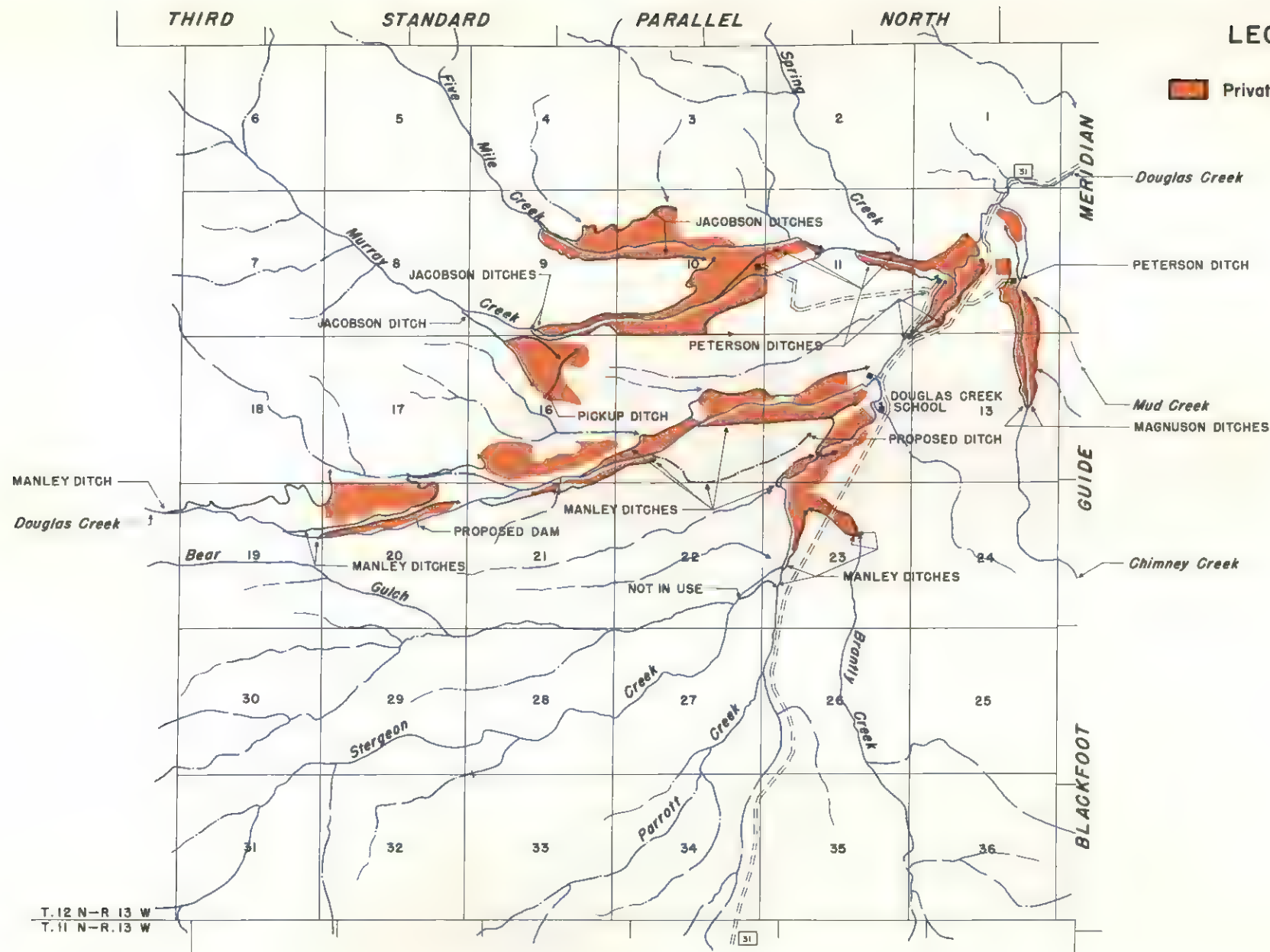


Twp. 12 NORTH
Rge. 11 WEST

LEGEND

-  Nevada Creek Water Users Ass'n.
-  Private Irrigation





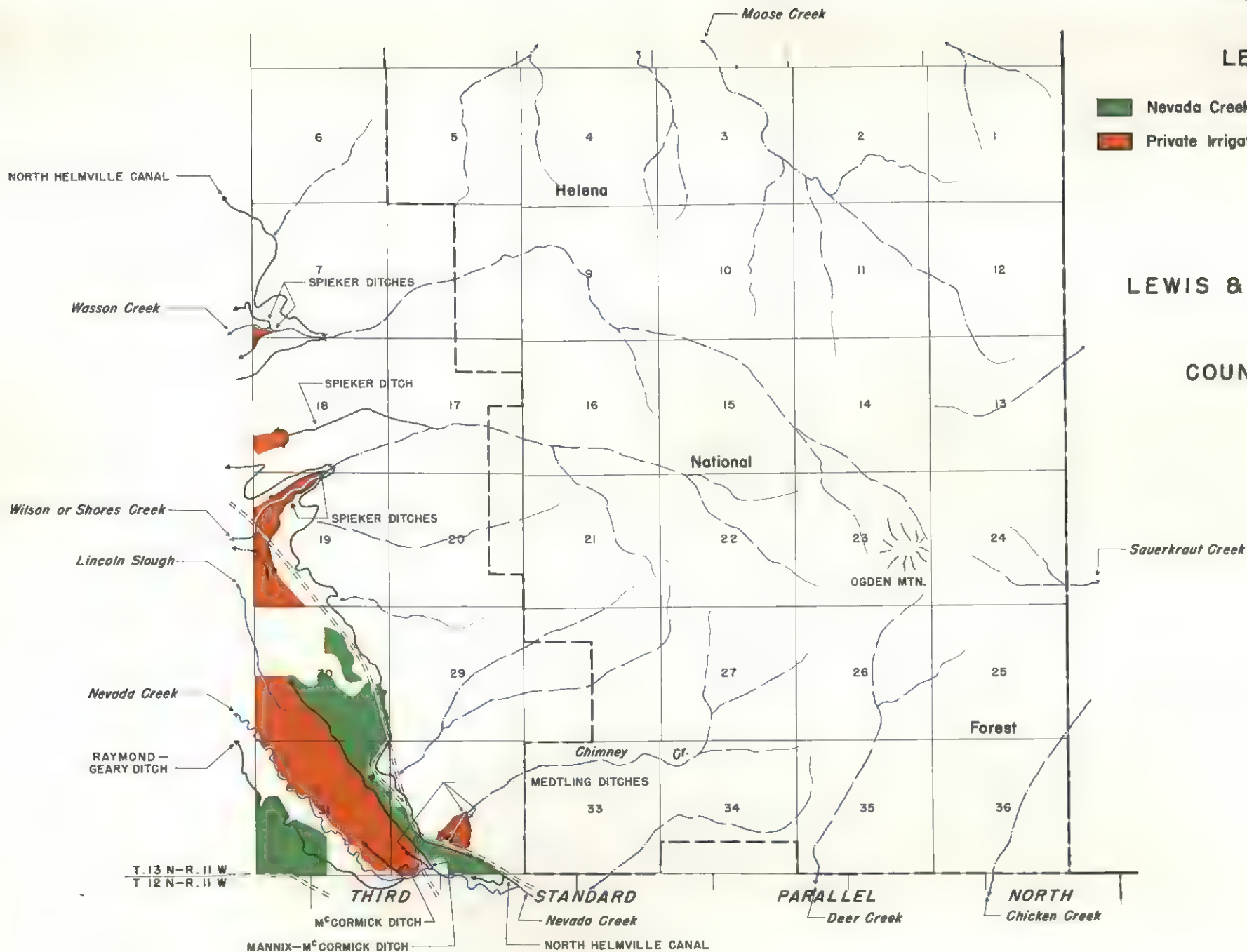
Twp. 13 NORTH
Rge. 10 WEST

LEGEND

- Nevada Creek Water Users Ass'n.
- Private Irrigation

LEWIS & CLARK

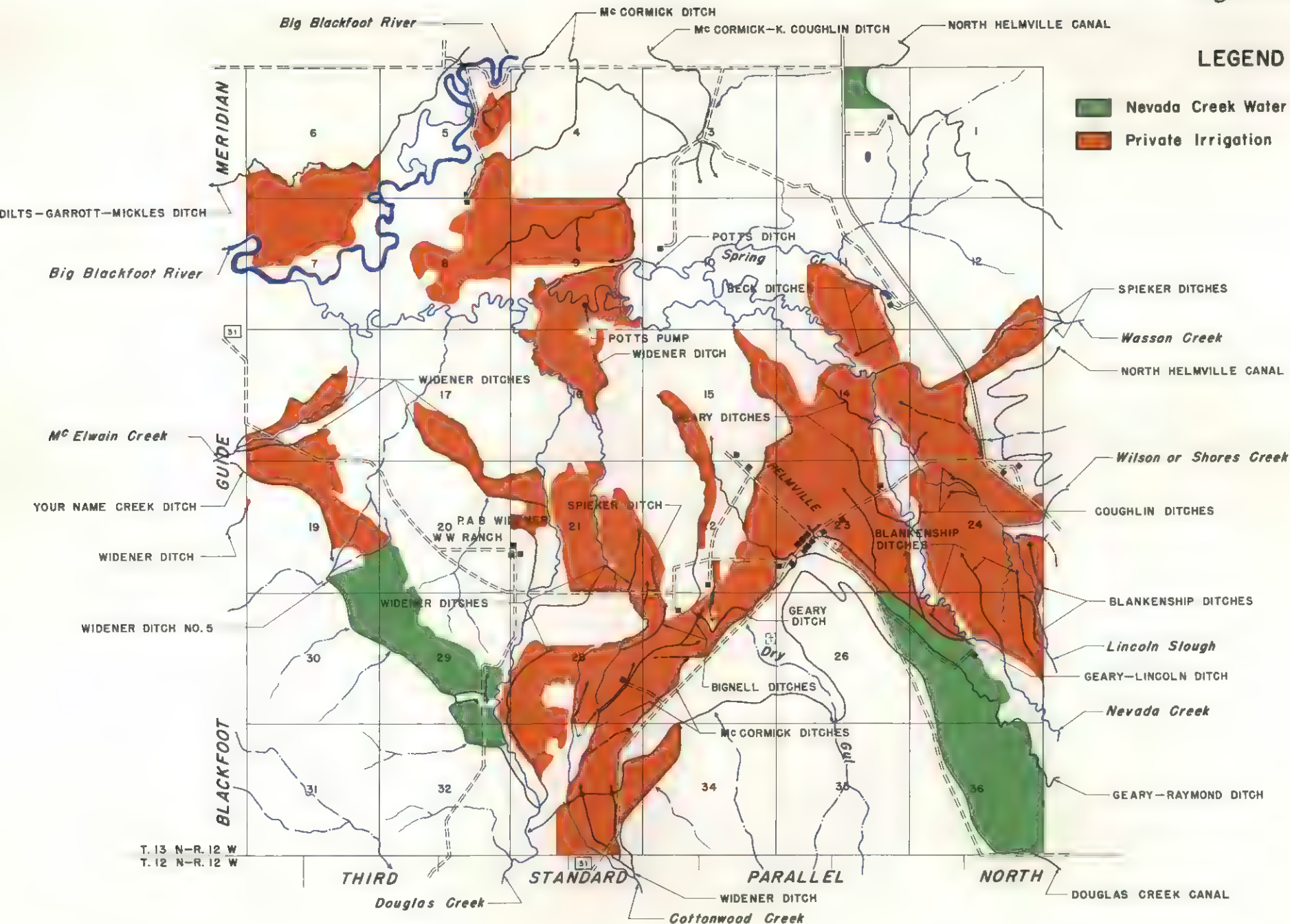
COUNTY



Twp. 13 NORTH
Rge. 11 WEST

LEGEND

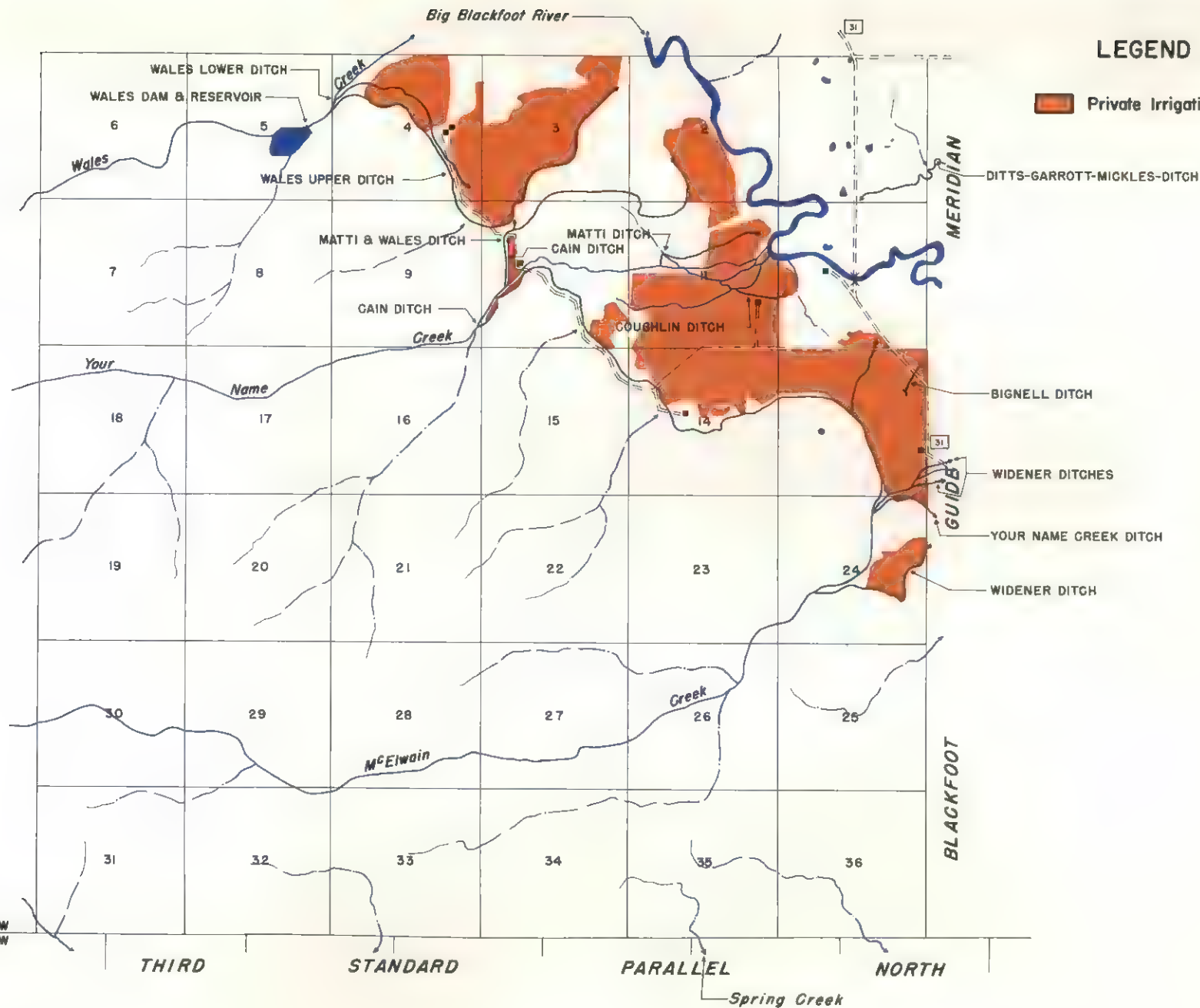
- Nevada Creek Water Users Ass'n.
- Private Irrigation



Twp. 13 NORTH
Rge. 12 WEST

LEGEND

 Private Irrigation



Twp. 14 NORTH

Rge. 10 WEST

LEGEND

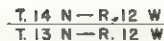
 Private Irrigation

LEWIS AND CLARK

COUNTY



LEGEND



Twp. 14 NORTH
Rge. 12 WEST

LEGEND

 Private Irrigation

 Spring Creek

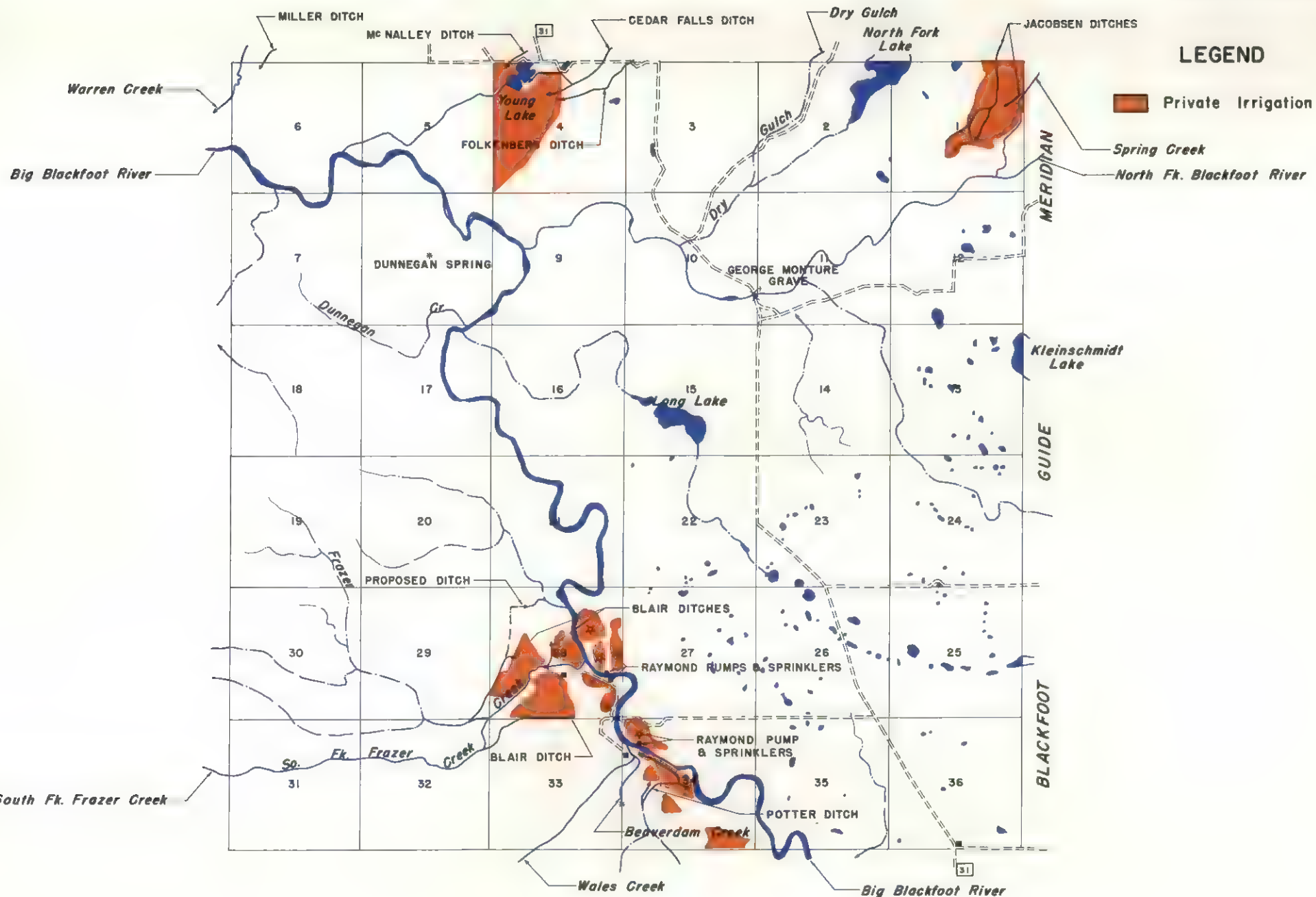
 North Fk. Blackfoot River

 Kleinschmidt Lake

GUIDE

BLACKFOOT

MERIDIAN



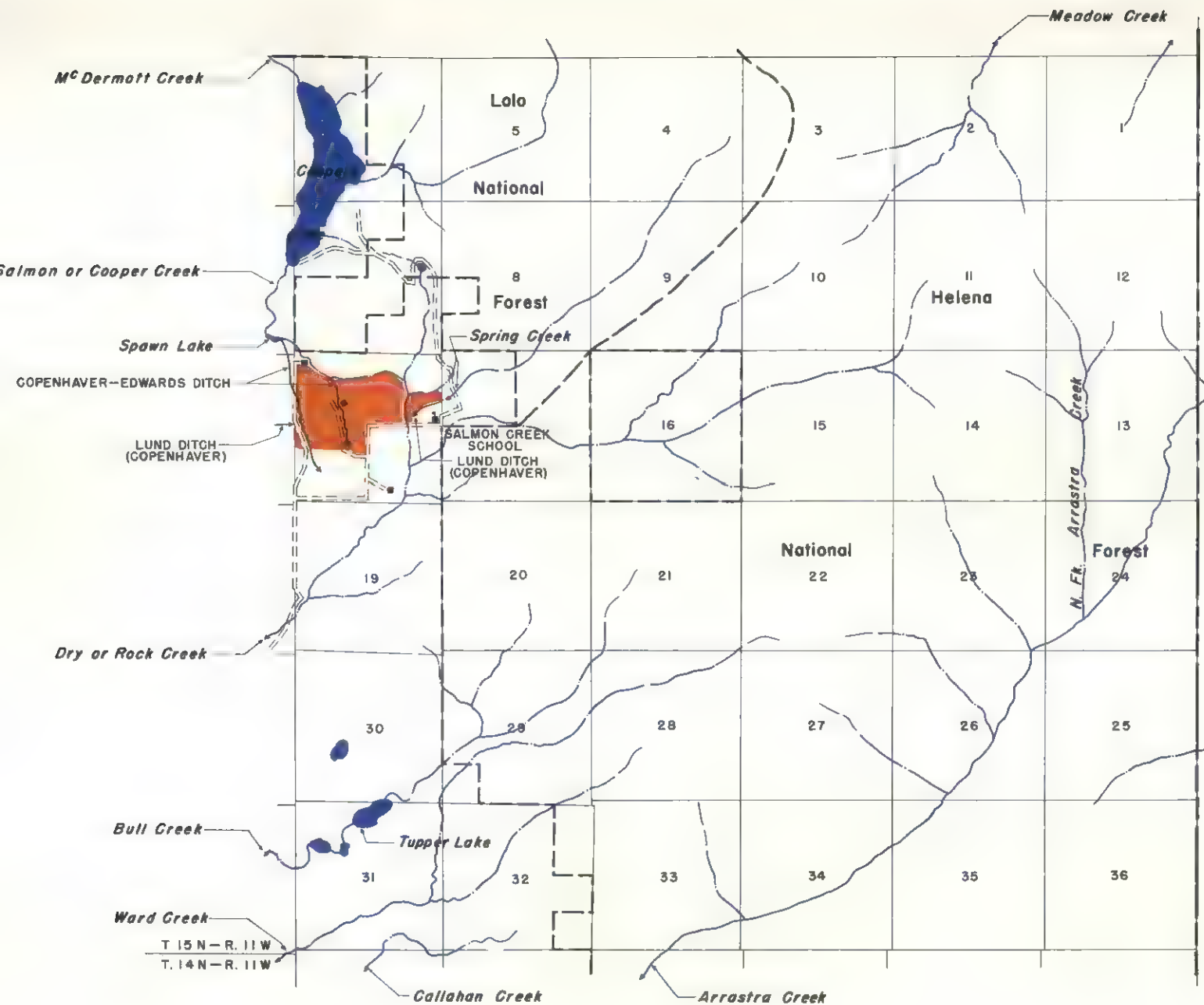
Twp. 15 NORTH
Rge. 10 WEST

LEGEND

 Private Irrigation

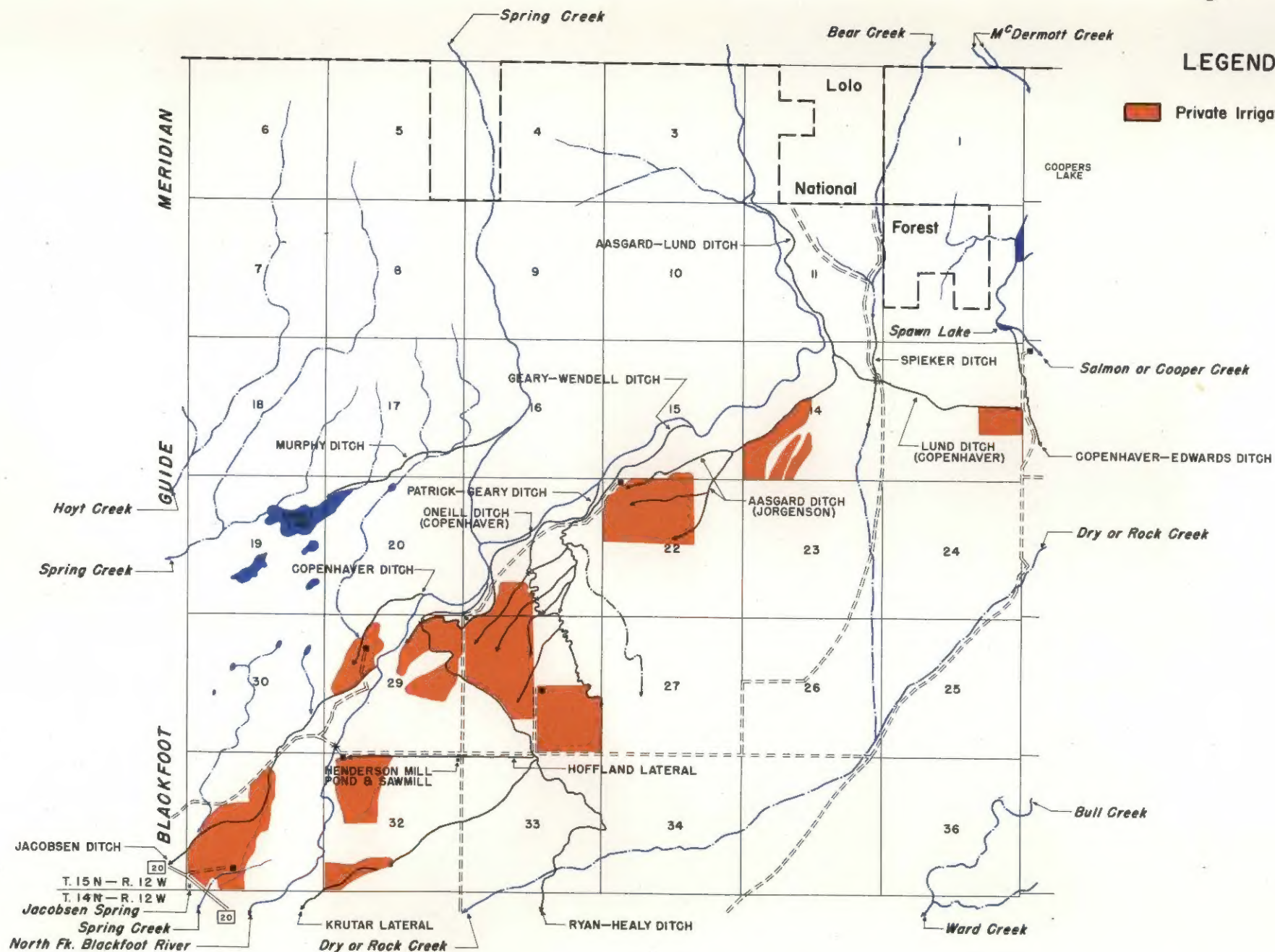
LEWIS AND CLARK

COUNTY




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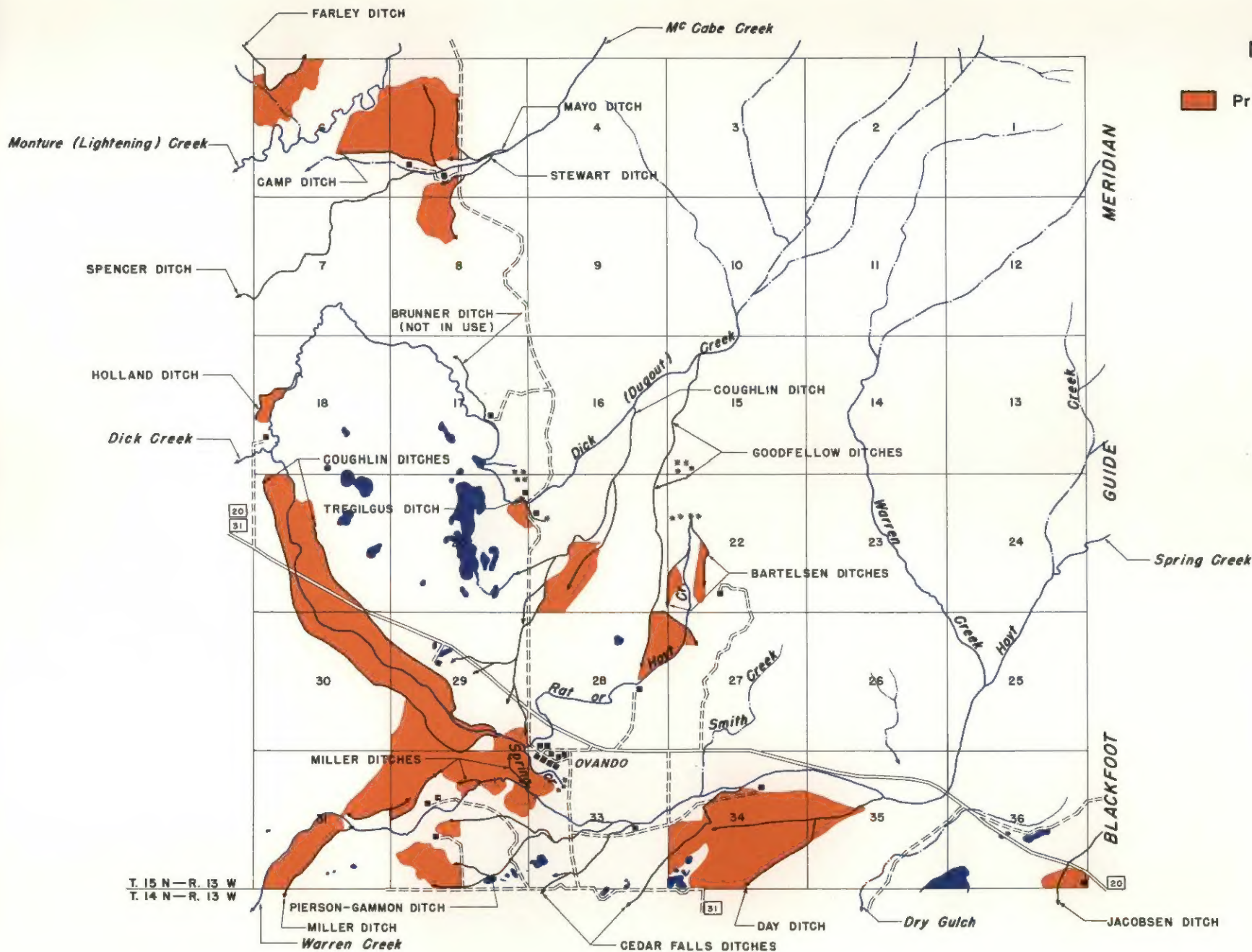
 Private Irrigation



Twp. 15 NORTH
Rge. 12 WEST

LEGEND

 Private Irrigation



Twp. 15 NORTH
Rge. 13 WEST

LEGEND

 Private Irrigation

